The PHOTOFACT® Servicer

SET 547 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ SEPT. 1961

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

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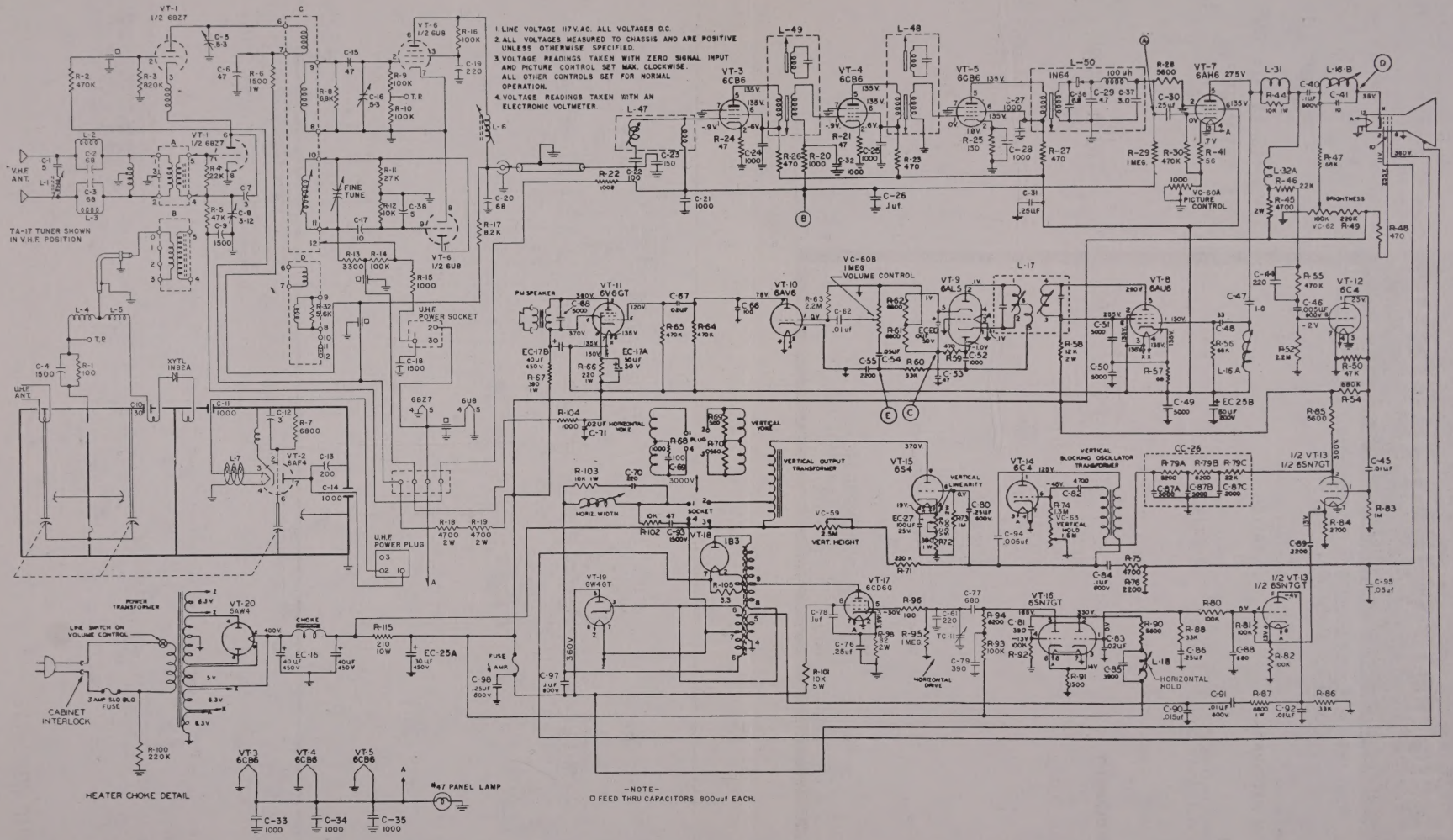
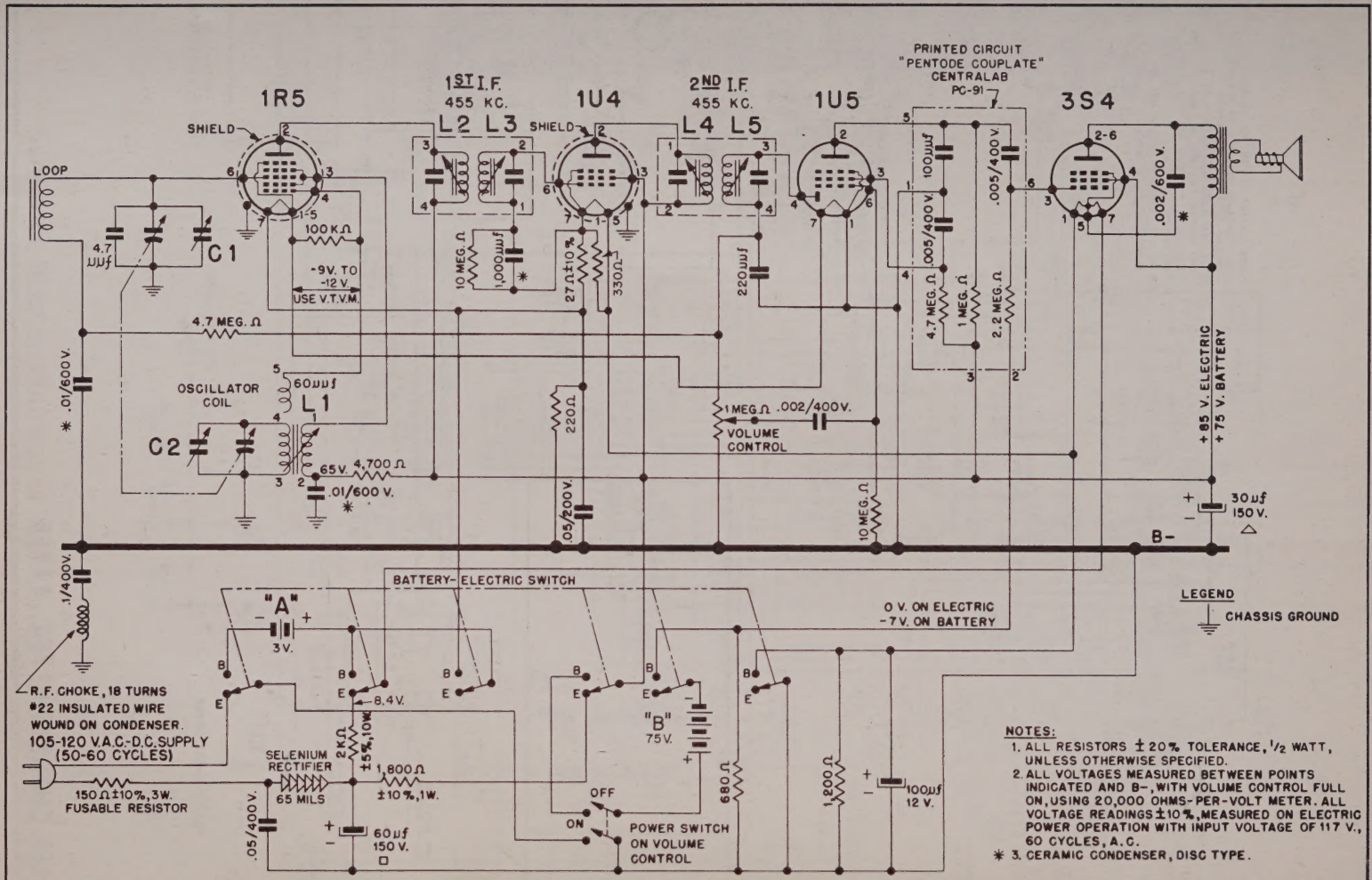
Olympic Model
446

Trav-Ler Chassis
417F4, 417F5


1. LINE VOLTAGE 117 V. AC. ALL VOLTAGES D.C.
2. ALL VOLTAGES MEASURED TO CHASSIS AND ARE POSITIVE UNLESS OTHERWISE SPECIFIED.
3. VOLTAGE READINGS TAKEN WITH ZERO SIGNAL INPUT AND PICTURE CONTROL SET MAX. CLOCKWISE. ALL OTHER CONTROLS SET FOR NORMAL OPERATION.
4. VOLTAGE READINGS TAKEN WITH AN ELECTRONIC VOLTMETER.
TA-17 TUNER SHOWN IN V.H.F. POSITION
V.H.F. ANT.
U.H.F. ANT.
U.H.F. POWER SOCKET
U.H.F. POWER PLUG
FINE TUNE
VOLUME CONTROL
PICTURE CONTROL
BRIGHTNESS
VERTICAL HEIGHT
VERTICAL LINEARITY
VERTICAL HOLD
HORIZ. WIDTH
HORIZONTAL HOLD
HORIZONTAL DRIVE
VERTICAL OUTPUT TRANSFORMER
VERTICAL BLOCKING OSCILLATOR TRANSFORMER
POWER TRANSFORMER
LINE SWITCH ON VOLUME CONTROL
CABINET INTERLOCK
3 AMP SLO BLO FUSE
CHOKE
HEATER CHOKE DETAIL
#47 PANEL LAMP
-NOTE-
FEED THRU CAPACITORS 800uuf EACH.

TRAV-LER CHASSIS 417F4, 417F5

Schematic Diagram Courtesy of Trav-Ler Radio Corporation



NOTES:

1. ALL RESISTORS ±20% TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND B-, WITH VOLUME CONTROL FULL ON, USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ±10%, MEASURED ON ELECTRIC POWER OPERATION WITH INPUT VOLTAGE OF 117 V., 60 CYCLES, A.C.

* 3. CERAMIC CONDENSER, DISC TYPE.

OLYMPIC MODEL 446

Schematic Diagram Courtesy of Olympic Radio & Television Inc.

PHOTOFACT® Folder with CIRCUITRACE®

ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)

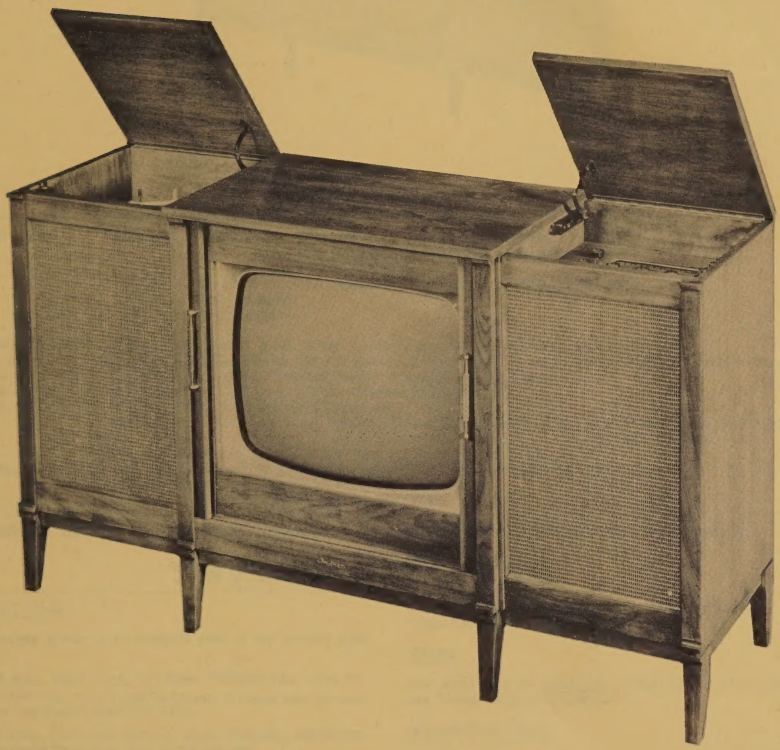
ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)



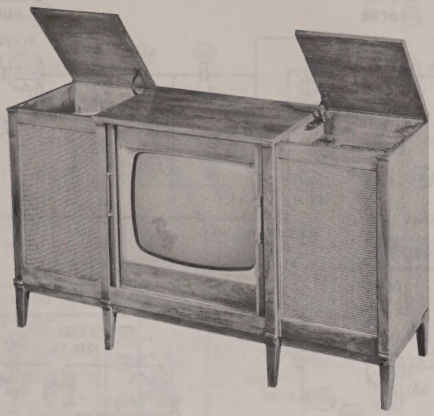
MODEL WFCO-VS323-5

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)

ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)



MODEL WFCO-VS323-5

TRADE NAME	ANDREA MODEL	TV Chassis	FM-AM Tuner Chassis	Amp. Chassis	VHF Tuner
	CO-VS323-5	VS323-5 ...	SRS13T	A4S ...	A27-5638
	WCO-VS323-5 .				
	WFCO-VS323-5 .				

MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, New York
TYPE SET	Television Receiver (With FM-AM Tuner, Stereo Amplifier, and 4 Speed Automatic Record Changer *)
TUBES	TV (VHF): Seventeen FM-AM Tuner: Fourteen Amp.: Seven
POWER SUPPLY	110-120 Volts AC, 60 Cycle (Some versions 50 Cycle)
RATING	TV: 215 Watts, 1.9 Amp. @ 117 Volts AC FM-AM Tuner with Amp.: 165 Watts, 1.5 Amp. @ 117 Volts AC (Selector Switch in FM or AM Position, or Phono Position) TV, FM-AM Tuner, & Amp.: 380 Watts, 3.4 Amp. @ 117 Volts AC
TUNING RANGE	TV: Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) FM-AM Tuner: BC-540 to 1700KC (455KC IF) FM-88 to 108MC (10.7MC IF)

*FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR UNIT - PHOTOFACT SET 509 FOLDER 12

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A 2.5 Amp. (line) fuse, 1/4 Amp.*(sweep) fuse used for TV protection. * (In some versions, 1/4 fuse may be used in both sweep and sound circuits).

A 2.5 Amp. (line) fuse used for phono and amp. protection. These fuses located at rear of TV chassis.

TUNER OSCILLATOR ADJUSTMENT

To touch up VHF Oscillator remove Channel Selector knob.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

No provision is made to vary the Focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency (B1). See "Tube Placement Chart".

WIDTH

The width may be varied by a Width Coil. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A9) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KC913

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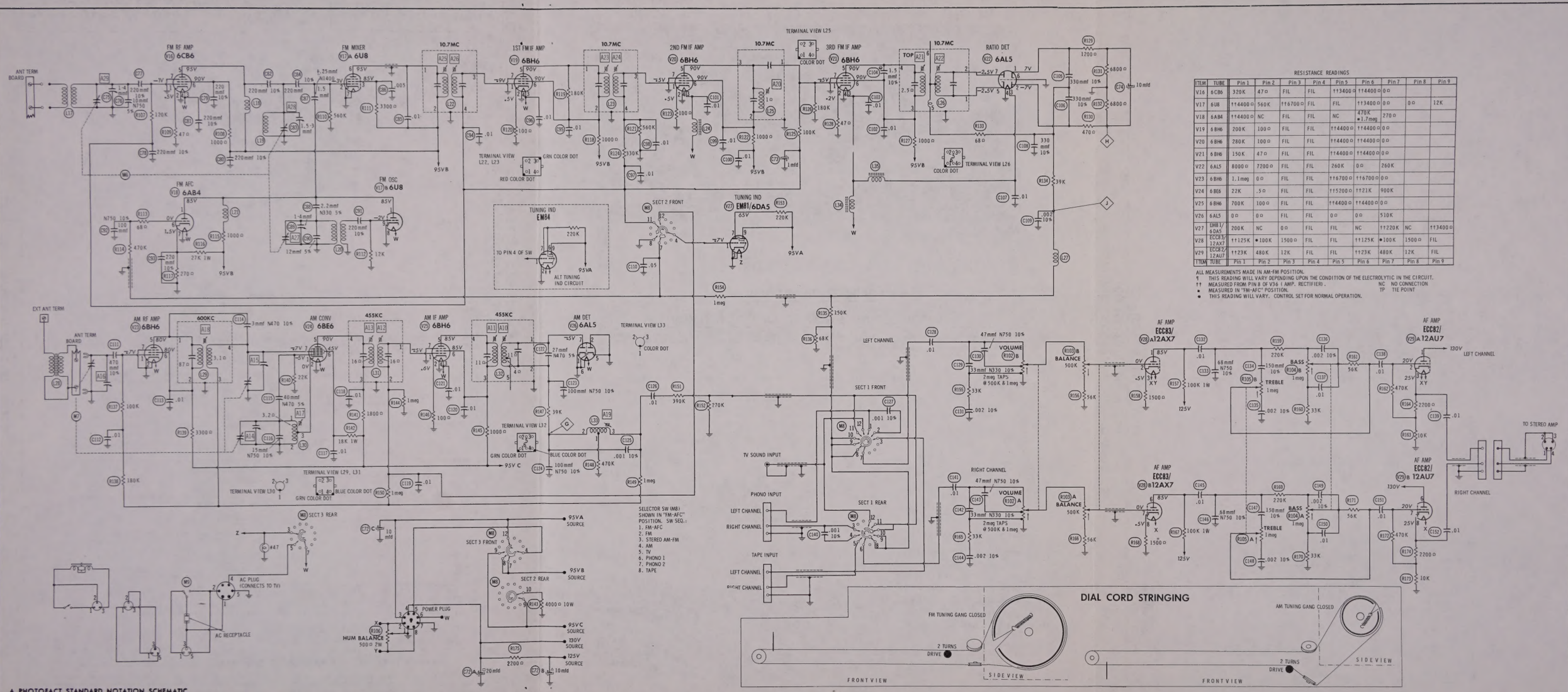
SET 547 FOLDER 1



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V16	6CB6	320K	47Ω	FIL	FIL	FIL	††3400Ω	††4400Ω	0Ω	
V17	6U8	††4400Ω	560K	††6700Ω	FIL	FIL	††3400Ω	0Ω	0Ω	12K
V18	6AB4	††4400Ω	NC	FIL	FIL	NC	470K ●1.7meg	270Ω		
V19	6BH6	200K	100Ω	FIL	FIL	††4400Ω	††4400Ω	0Ω		
V20	6BH6	280K	100Ω	FIL	FIL	††4400Ω	††4400Ω	0Ω		
V21	6BH6	150K	47Ω	FIL	FIL	††4400Ω	††4400Ω	0Ω		
V22	6AL5	8000Ω	7200Ω	FIL	FIL	260K	0Ω	260K		
V23	6BH6	1.1meg	0Ω	FIL	FIL	††6700Ω	††6700Ω	0Ω		
V24	6BE6	22K	.5Ω	FIL	FIL	††5200Ω	††21K	900K		
V25	6BH6	700K	100Ω	FIL	FIL	††4400Ω	††4400Ω	0Ω		
V26	6AL5	0Ω	0Ω	FIL	FIL	0Ω	0Ω	510K		
V27	EM81/6DA5	200K	NC	0Ω	FIL	FIL	NC	††220K	NC	††3400Ω
V28	ECC83/12AX7	††125K	●100K	1500Ω	FIL	FIL	††125K	●100K	1500Ω	FIL
V29	ECC82/12AU7	††23K	480K	12K	FIL	FIL	††23K	480K	12K	FIL
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

ALL MEASUREMENTS MADE IN AM-FM POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 8 OF V36 (AMP. RECTIFIER). NC NO CONNECTION
● MEASURED IN "FM-AFC" POSITION. TP TIE POINT
■ THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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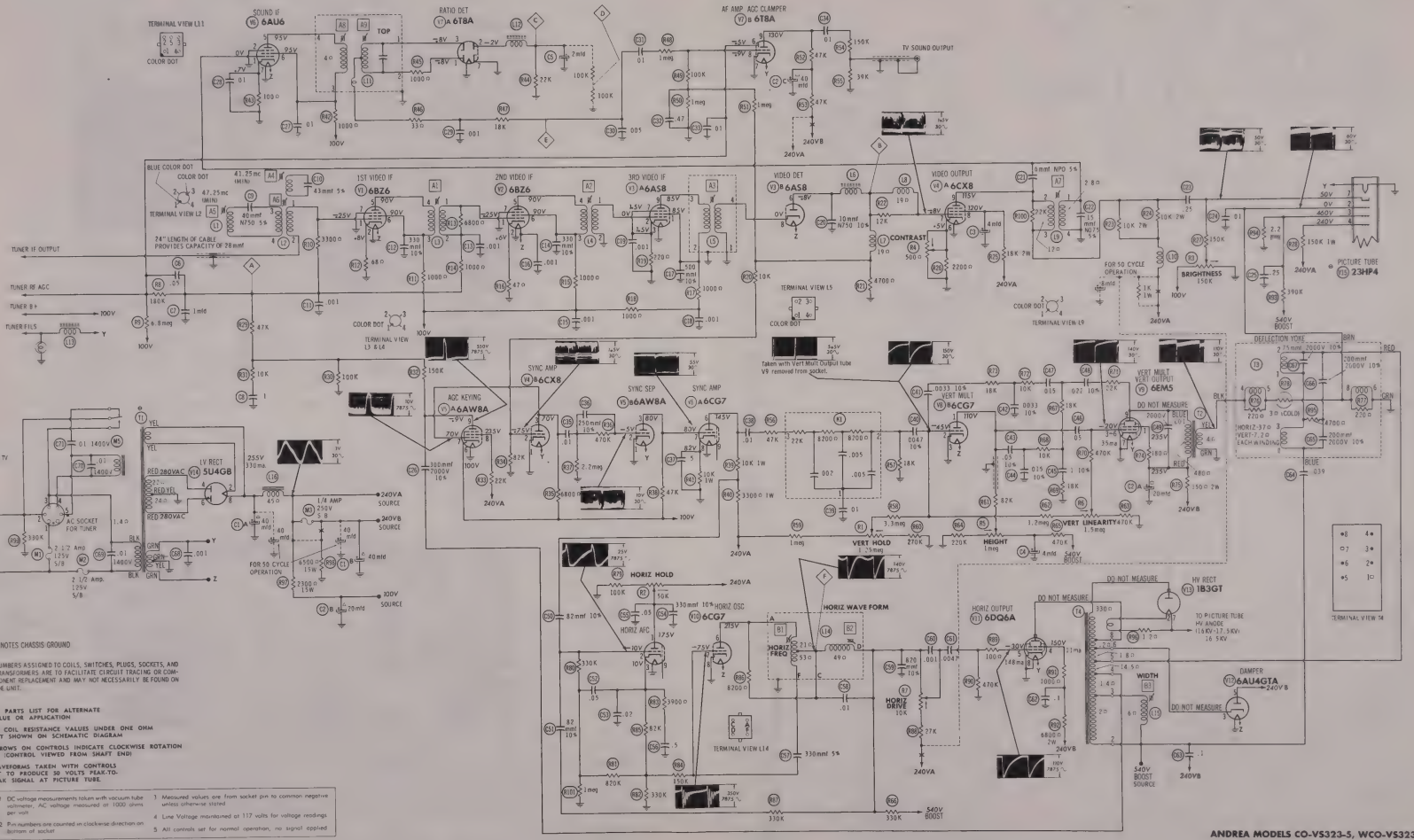
FM-AM TUNER SCHEMATIC

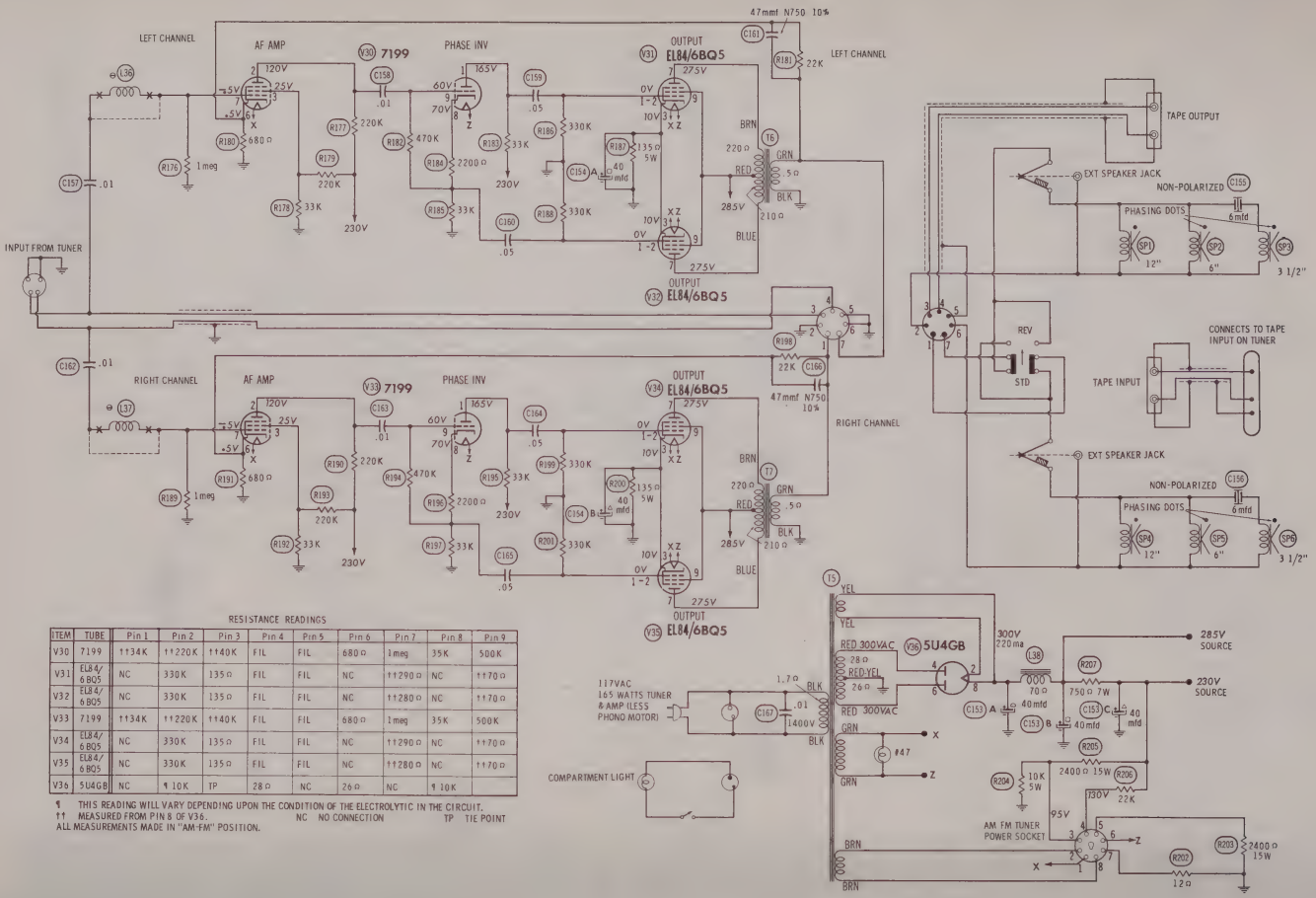


ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)

FOLDER 1

TV SCHEMATIC

SET 547 FOLDER 1



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V30	7199	††34K	††220K	††40K	FIL	FIL	680Ω	1meg	35K	500K
V31	EL84/6BQ5	NC	330K	135Ω	FIL	FIL	NC	††290Ω	NC	††70Ω
V32	EL84/6BQ5	NC	330K	135Ω	FIL	FIL	NC	††280Ω	NC	††70Ω
V33	7199	††34K	††220K	††40K	FIL	FIL	680Ω	1meg	35K	500K
V34	EL84/6BQ5	NC	330K	135Ω	FIL	FIL	NC	††290Ω	NC	††70Ω
V35	EL84/6BQ5	NC	330K	135Ω	FIL	FIL	NC	††280Ω	NC	††70Ω
V36	5U4GB	NC	¶ 10K	TP	28Ω	NC	26Ω	NC	¶ 10K	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 8 OF V36. NC NO CONNECTION TP TIE POINT
ALL MEASUREMENTS MADE IN "AM-FM" POSITION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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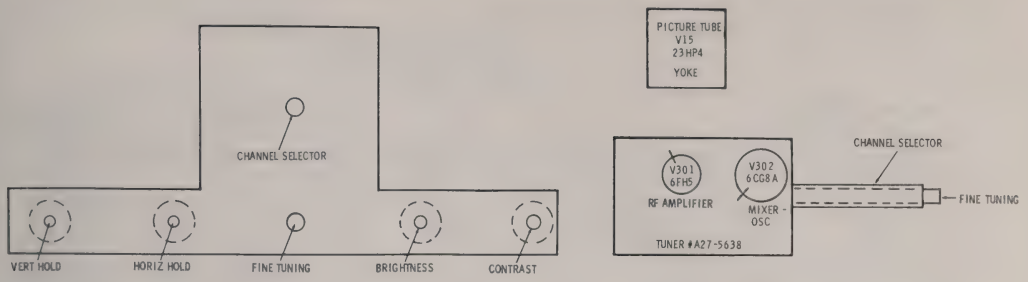
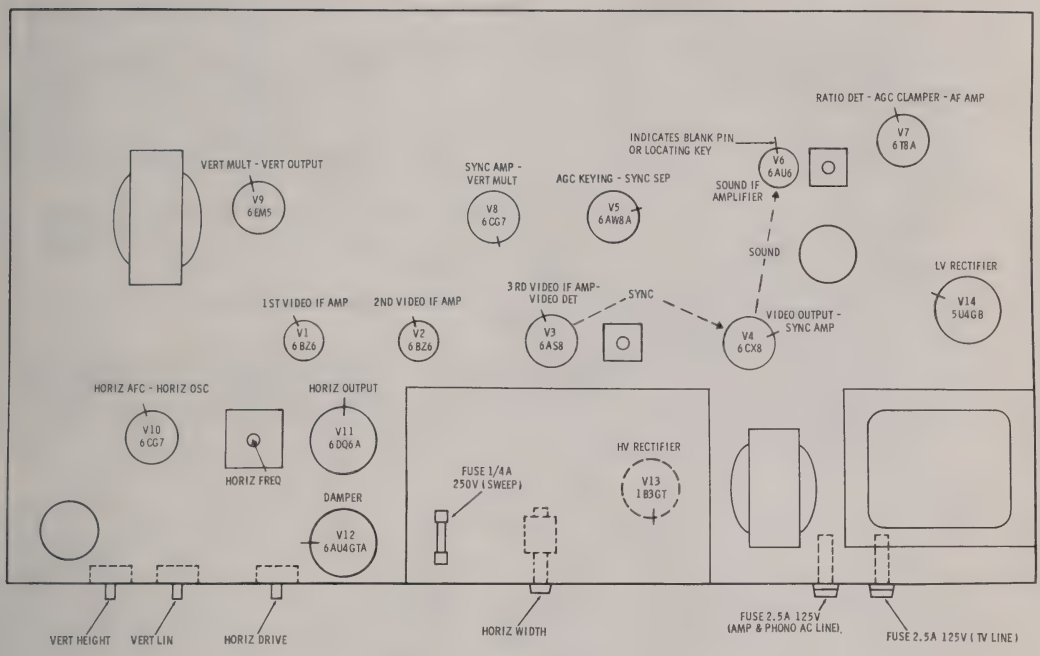
AMP SCHEMATIC

T V TUBE PLACEMENT CHART



TOP VIEW



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), V14, Sweep & Sound (B±) fuse in some versions.

SWEEP FAILURE
No raster, has sound Fuse (Sweep), V10, V11, V12, V13, V15
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V8, V9
Horiz. off freq. V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V6, V7 (See Amp. Chassis)
Overloaded picture V5

SYNC FAILURE
No vert. sync V4, V5, V8
No horiz. sync V4, V5, V8
No vert. or horiz. sync V4, V5, V8

ALIGNMENT INSTRUCTIONS

TV

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

Suggested Alignment Tools: A1 thru A9 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
Mixer Plate Coil ..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Disconnect IF Input coil from pin 1 (grid) of 1st Video IF Amp.
Attenuate Sweep Generator Output to maintain between 2 and 3 volts peak to peak on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to pin 1 (grid) of 1st Video IF. Low side to chassis.	44.0MC (10MC Swp.)	41.25MC 42.5MC 43.0MC 45.0MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across Video Det. load).	A1, A2, A3	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls position of 45.75MC marker, A2 controls bandwidth and low frequency skirt of curve, and A3 controls tilt. Reconnect IF Input coil to grid of 1st Video IF.
2.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip Low side to chassis.	"	"	"	"	A4, A5, A6	Adjust A4 to place 41.25MC marker in trap notch. Adjust A5 to place 47.25MC marker in other trap notch. Adjust A6 and Mixer Plate coil for maximum flatness and position of 45.75MC marker as in Fig. 1. If necessary repeat steps 1 and 2.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓓ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	High side thru .01mfd to point Ⓑ. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe to point Ⓒ. Common to chassis.	A7, A8	Adjust for maximum deflection.
4.	"	"	"	DC probe to point Ⓓ. Common to point Ⓔ.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FIG. 1

Alignment Identification Photos Pages 7, 19.

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213, A214, A215..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set the Fine Tuning to the center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

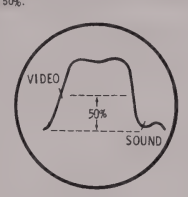


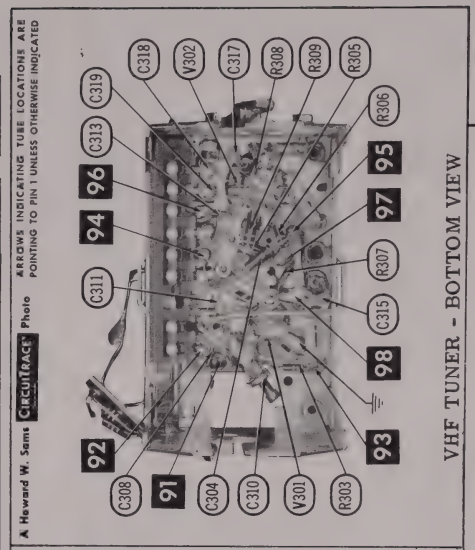
FIG. 201

VHF RF AND MIXER ALIGNMENT

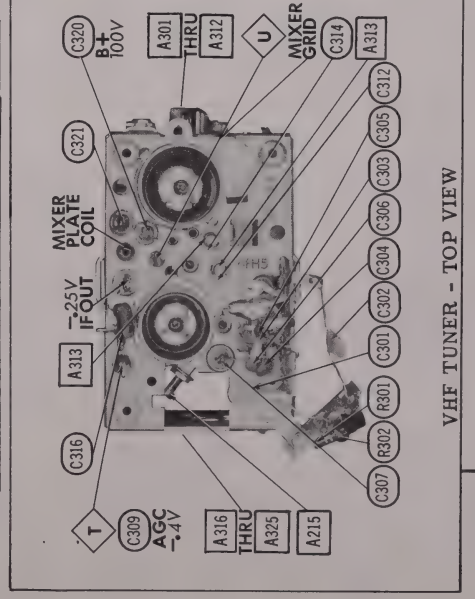
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Restore bias.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by compressing or expanding coil turns.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

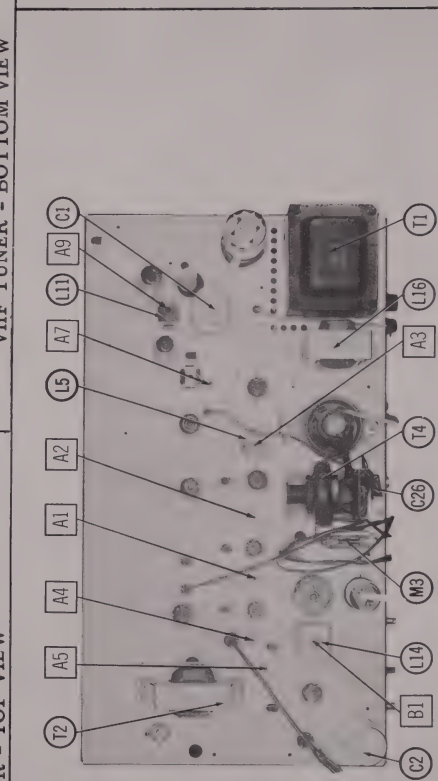
FIG. 202



VHF TUNER - BOTTOM VIEW



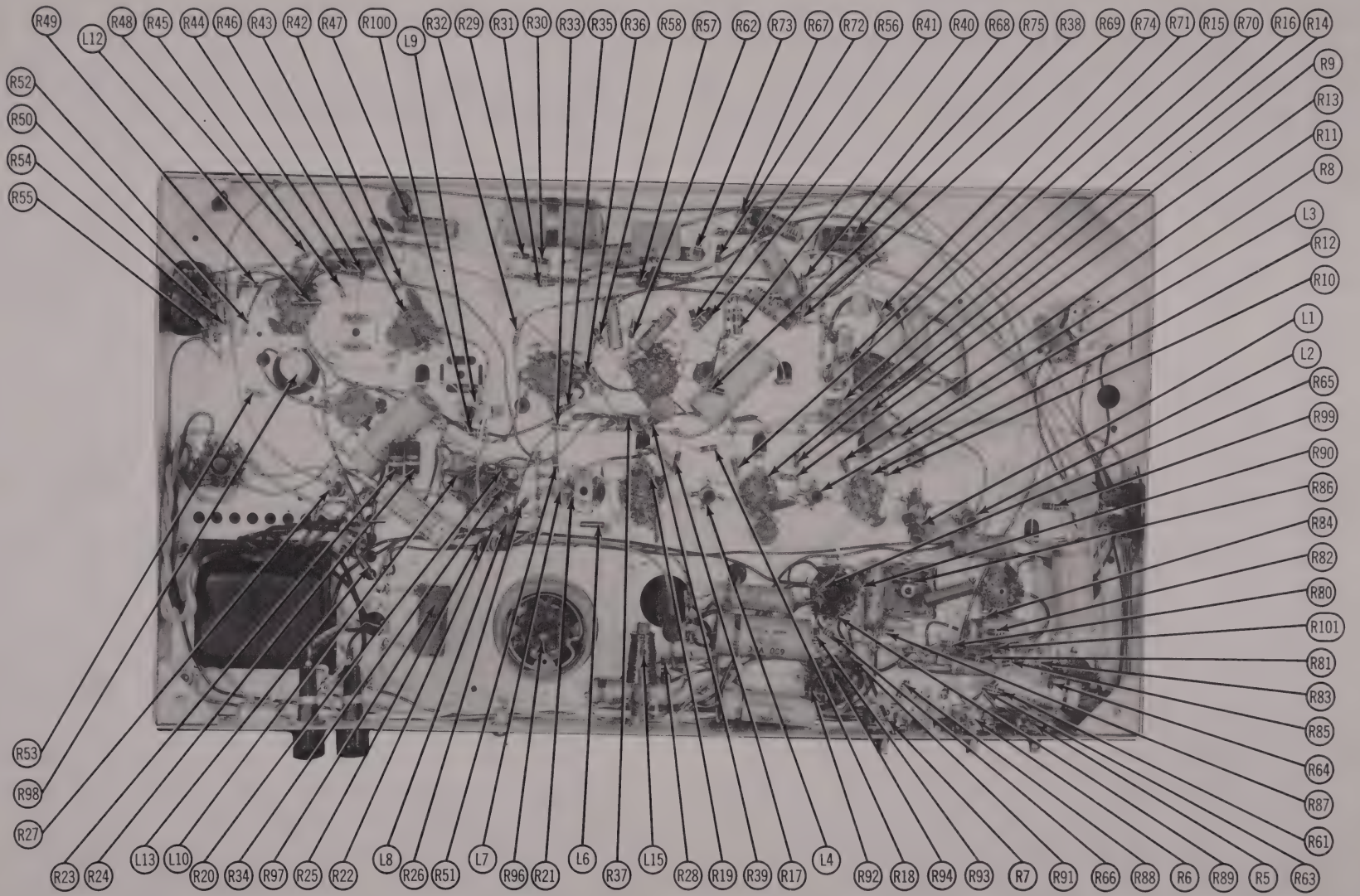
VHF TUNER - TOP VIEW



TV CHASSIS TOP VIEW

ANDREA MODELS CO-VS323-5, WCO-VS323-5, WFCO-VS323-5 (Ch. VS323-5)

FOLDER 1



TV CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.

FM-AM TUNER ALIGNMENT INSTRUCTIONS

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A10 thru A13, A17, A20 thru A26 . . GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A14, A15, A16, A27, A28, A29 . . . GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A19 . . . . . GENERAL CEMENT #8721, 8722
WALSCO #2519

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe to point (G). Common to chassis.	A10, A11, A12, A13	Adjust for maximum deflection.
2.	High side to AM antenna terminal. Low side to chassis.	1700KC	1700KC	"	A14, A15, A16	"
3.	"	600KC	600KC	"	A17, A18	"
4.	"	1500KC	1500KC	"		Retouch A15 and A16 for maximum deflection. Repeat steps 3 and 4.
5.	"	1500KC (10KC Mod)	"	AC probe to tuner output jack. Common to chassis.	A19	Adjust for MINIMUM deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 1 (grid) of 2nd FM IF. Low side to chassis.	10.7MC (Unmod.) 18,000 uv.	(FM) . Point of non-interference	DC probe to (H). Common to chassis.	A20, A21	Adjust for maximum deflection.
7.	"	"	"	DC probe to (J). Common to chassis.	A22	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
8.	High side thru .01mfd to pin 1 (grid) of 1st FM IF Amp. Low side to chassis.	10.7MC (Unmod.) 6000 uv.	"	DC probe to (H). Common to chassis.	A23, A24	Adjust for maximum deflection.
9.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.) 150uv.	"	"	A25, A26	Adjust for maximum deflection. Repeat steps 7 and 8.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side thru .01mfd to pin 1 (grid) of 2nd FM IF Amp. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point (H). Low side to chassis.	A20, A21	Disconnect Stabilizing Capacitor C74. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Reconnect C74.
7.	"	"	"	Vert. Amp. to point (J). Low side to chassis.	A22	Adjust to place marker at the center of crossover lines similar to Fig. 4 SLIGHTLY retouch A20 for maximum amplitude and straightness of crossover lines.
8.	High side thru .01mfd to pin 1 (grid) of 1st FM IF Amp. Low side to chassis.	"	"	Vert. Amp. to point (H). Low side to chassis.	A23, A24	Disconnect C74. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown.
9.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	"	"	"	A25, A26	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Reconnect C74.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	Across FM antenna terminals with 270Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe to point (H). Common to chassis.	A27	Adjust for maximum deflection.
11.	"	"	(FM/AFC) 108MC	"	A28, A29	"

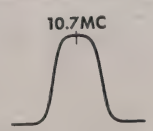


FIG. 3

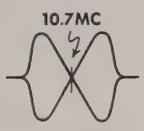
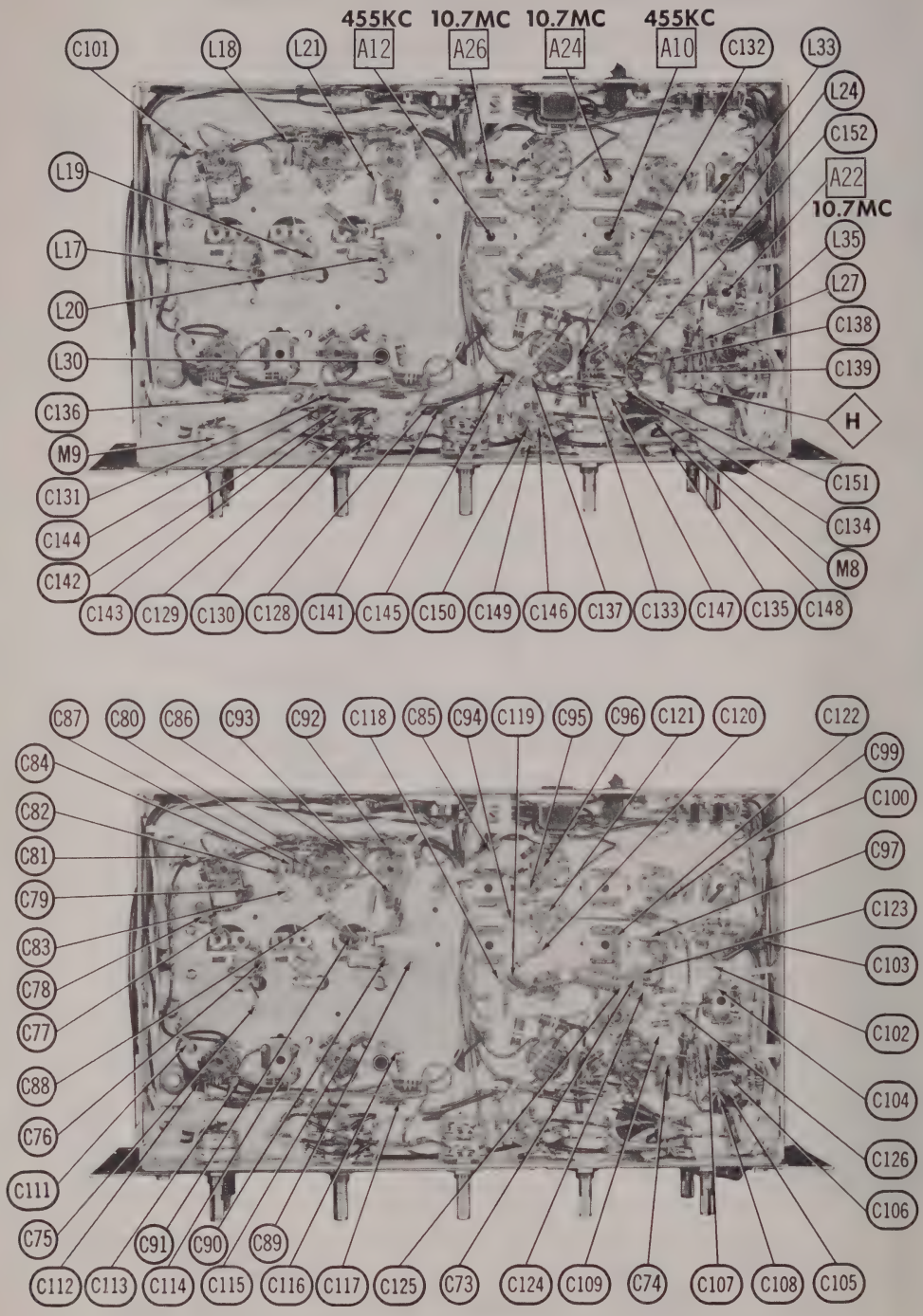


FIG. 4



FM-AM TUNER BOTTOM VIEW -
ALIGN., CAPACITOR, INDUCTOR, MISC. IDENT.

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •				
V30	Left Channel AF Amp. - Phase Inverter	7199	V33	Right Channel AF Amp. - Phase Inverter	7199
V31	Left Channel Output	EL84/6BQ5	V34	Right Channel Output	EL84/6BQ5
V32	Left Channel Output	EL84/6BQ5	V35	Right Channel Output	EL84/6BQ5
			V36	Rectifier	5U4GB

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ANDREA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C153A	▲40	450	HCE-1364	AFH3-44	C0360	FP377.1	TMT-3748	TVL-3787	
B	●40	450							
C	▲40	450							
C154A	▲40	25	HCE-1368	AFH3-04	B0080	WP301.1	TMD-3030	TVL-2210	
B	▲40	25							
C155	6	10NP	HCE-1343	PRS8200	BBR6-150	TCN106		TVANS-1111 *	
C156	6	10NP	HCE-1343	PRS8200	BBR6-150	TCN106		TVANS-1111 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C157	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C158	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C159	.05			BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50
C160	.05			BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50
C161	47	N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C162	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C163	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C164	.05			BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50
C165	.05			BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50
C166	47	N750 10%		N750-DI 47	DTN-47	C10Q47C	CCTN-470	CN7-447	10TCU-Q47
C167	.01	1400V		DAC-27	DUR5-103	HVE16S1	16DP-3-103	2HV-110	BL-S10

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No	REMARKS
R176	1meg			
R177	220K			
R178	33K			
R179	220K			
R180	680Ω			
R181	22K			
R182	470K			
R183	33K			
R184	2200Ω			
R185	33K			
R186	330K			
R187	135Ω 5W	PW5-135	5W-SQ-135	
R188	330K			
R189	1meg			
R190	220K			
R191	680Ω			
R192	33K			
R193	220K			
R194	470K			
R195	33K			
R196	2200Ω			
R197	33K			
R198	22K			
R199	330K			
R200	135Ω 5W	PW5-135	5W-SQ-135	
R201	330K			
R202	12Ω			
R203	2400Ω 15W			
R204	10K 5W			
R205	2400Ω 15W			
R206	22K			
R207	750Ω TW	PW7-750	TW-SQ-750	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ANDREA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L36	Tone Choke ①						① May not be used in some versions.
L37	Tone Choke ①						

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA ANDREA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L38	.220A	70Ω	2.5 Hy.	ST-3078-1	C-2991	C-2334 ①	26C91 ①	C-17X	① Drill new mounting hole(s)

TRANSFORMER (POWER)

ITEM No.	RATING PRI	SEC 1	SEC 2	REPLACEMENT DATA ANDREA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	117V ▲ 1.5A	600VCT ▲ .220A DC	5V ▲ 3A	A52-3114	P-2836		26R91		
	SEC 3	SEC 4	SEC 5						
	6.3V ▲ .6A	6.3V ◆ 8.3A							

FM–AM TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •				
V16	FM RF Amplifier	6CB6	V24	AM Converter	6BE6
V17	FM Mixer - FM Osc.	6U8	V25	1st AM IF Amplifier	6BH6
V18	FM AFC	6AS4	V26	AM Detector	6AL5
V19	1st FM IF Amplifier	6BH6	V27	Tuning Indicator	EM81/6DA5 (EM84) *
V20	2nd FM IF Amplifier	6BH6	V28	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V21	3rd FM IF Amplifier	6BH6	V29	Left Channel AF Amp. - Right Channel AF Amp.	ECC82/12AU7
V22	Ratio Detector	6AL5			
V23	AM RF Amplifier	6BH6			

* Used in later production chassis.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ANDREA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C72A	▲20	450	HCE-1356	AFH3-36	C0260	FP378.3	TMT-3715	TVL-3779	
	▲10	450							
	10	450							
C73	1	25	HCE-1358	PRS1300	BBRL-50	TC31	TD-1-50	TVA-1300	
C74	10	50	HCE-1357	PRS1320	BBR10-50	TC32	TD-10-50	TVA-1304	

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C75	1-4				829-4		CV-2	CT551	
C76	10	N750 5%		N750-SI 10	TCN-10	C10Q10U	CCTN-100	CN7-410	10TCU-Q10
C77	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C78	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C79	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C80	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C81	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C82	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C83	1.5-3				829-3		CV-1	CT565	
C84	220	10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C85	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C86	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C87	1.5	N1400 x .25mmf					*		
C88	2.2	N330 5%					*		
C89	1-4				829-4		CV-2	CT551	
C90	12		5%	NPO-SI 12	TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C91	220		10%	NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C92	100	N750	10%	N750-SI 100	TCN-100	C10TIC	CCTN-101	CN7-310	10TCU-T10
C93	220		10%	NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C94	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C95	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C96	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C97	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C98	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C99	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C100	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C101	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C102	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C103	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C104	1.5		10%	NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C105	330		10%	DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C106	330		10%	DD-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C107	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C108	330		10%	DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C109	.002		10%	DI-2000		5RS1D	CCD-202	GP220	10TS-D20
C110	.05			BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50
C111	470		10%	DI-470	DD-471	5RS7T47	CCD-471	GP347	10TS-T47
C112	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C113	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C114	3		10%				*		
C115	40		5%				*		
C116	15	N750	10%	N750-SI 15	TCN-15	C10Q15U	CCTN-150	CN7-415	10TCU-Q15
C117	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C118	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C119	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C120	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C121	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C122	27	N470	5%				*		
C123	100	N750	10%	N750-SI 100	TCN-100	C10TIU	CCTN-101	CN7-310	10TCU-T10
C124	100	N750	10%	N750-SI 100	TCN-100	C10TIU	CCTN-101	CN7-310	10TCU-T10
C125	.001		10%	DI-1000	DD-102	5RS1K	CCD-102	GP210	10TS-D10
C126	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C127	.001		10%	DI-1000	DD-102	5RS1K	CCD-102	GP210	10TS-D10
C128	.01			BPD-01	DD-103	BYA10S1		B-110	5HK-S10
C129	33	N330	10%				*		10TCS-Q33
C130	47	N750	10%	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C131	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C132	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C133	68	N750	10%	N750-DI 68	DTN-68	C10Q68C	CCTN-680	CN7-468	10TCU-Q68
C134	150		10%	DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C135	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C136	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C137	.01	100V		P388N-01	D6-103	CUB4S1	IDP-1-103	GEM-411	4TM-S10
C138	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C139	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C140	.001		10%	DI-1000	DD-102	5RS1K	CCD-102	GP210	10TS-D10
C141	.01			BPD-01	DD-103	BYA10S1	CCD-102	B-110	5HK-S10
C142	33	N330	10%				*		10TCS-Q33
C143	47	N750	10%	N750-DI 47	DTN-47	C10Q47C	CCTN-470	CN7-447	10TCU-Q47
C144	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C145	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C146	68	N750	10%	N750-DI 68	DTN-68	C10Q68U	CCTN-680	CNO-468	10TCU-Q68
C147	150		10%	DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C148	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C149	.002		10%	DI-2000		5RS2D	CCD-202	GP220	10TS-D20
C150	.01	100V		P388N-01	D6-103	CUB4S1	IDP-1-103	GEM-411	2TM-S10
C151	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C152	.01			BPD-01	DD-103 *	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. May not be used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING RESISTANCE	WATTS	REPLACEMENT DATA ANDREA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R102A	2meg ①		GRV-884	BT-475			FA26DT16	Volume, Right Channel
B	2meg ①			BTR-475			RU 26DT16	Volume, Left Channel
C	Shaft						CS3500	
R103A	500K		GRV-886	B-59	AD47-500K-8		FA55L	Balance, Right Channel
B	500K			SR-59	Not Req.		RU55L	Balance, Left Channel
C	Shaft			Not Req.	KSS-3		CS3500	
R104A	1meg		GRV-885	B-70	AD47-1meg-Z		FA16A	Bass, Right Channel
B	1meg			SR-70	Not Req.		RU16A	Bass, Left Channel
C	Shaft			Not Req.	KSS-3		CS3500	
R105A	1meg		GRV-885	B-70	AD47-1meg-Z		FA16A	Treble, Right Channel
B	1meg			SR-70	Not Req.		RU16A	Treble, Left Channel
C	Shaft			Not Req.	KSS-3		CS3500	
R106A	500Ω	2(WW)	GRV-856	WH-501	A43-500	WP8500	R500L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

① Taps ② 500K and 1meg.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R107	120K			
R108	1000Ω			
R109	47Ω			
R110	560K			
R111	3300Ω			
R112	12K			
R113	68Ω			
R114	470K			
R115	1000Ω			
R116	27K 1W			
R117	270Ω			
R118	1000Ω			
R119	180K			
R120	100Ω			
R121	560K			
R122	1000Ω			
R123	100Ω			
R124	330K			
R125	100K			
R126	180K			
R127	1000Ω			
R128	47Ω			
R129	1200Ω			
R130	470Ω			
R131	6800Ω			
R132	6800Ω			
R133	68Ω			
R134	39K			
R135	150K			
R136	68K			
R137	100K			
R138	180K			
R139	2300Ω			
R140	22K			
R141	1800Ω			
R142	18K 1W			
R143	4000Ω 10W	PW10-4000	5W-SQ-4000	
R144	1meg			
R145	1000Ω			
R146	100Ω			
R147	39K			
R148	470K			
R149	1meg			
R150	1meg			
R151	390K			
R152	270K			
R153	220K			
R154	1meg			
R155	33K			
R156	56K			
R157	100K 1W			
R158	1500Ω			
R159	220K			
R160	33K			
R161	56K			
R162	470K			
R163	10K			
R164	2200Ω			
R165	33K			
R166	56K			
R167	100K 1W			
R168	1500Ω			
R169	220K			
R170	33K			
R171	56K			
R172	470K			
R173	10K			
R174	2200Ω			
R175	2200Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ANDREA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L17	FM Ant. Trans.	SA-412					
L18	RF Choke (3.3uh)	SA-415	BC-564	4608	RTC-8518	T858	
L19	FM RF	SA-413					
L20	FM Osc.	SA-414					
L21	RF Choke (3.3uh)	SA-415	BC-564	4608	RTC-8518	T858	
L22	1st FM IF	SA-408	FM-254	1463	RTC-8599	T633	
L23	2nd FM IF	SA-409	FM-254	1463	RTC-8599	T633	
L24	Fil. Choke (2uh)	SA-416	BC-563	4606	RTC-8517	T857	
L25	3rd FM IF	SA-410					
L26	Ratio Detector	SA-411	FM-255	1465	RTC-8600	T635	
L27	RF Choke (5uh)		SW-531	4609	RTC-8519	T977	
L28	Loopstick	SA-402	BC-419	705-A		T532	
L29	AM RF	SA-403					
L30	AM Osc.	SA-404	BC-393	70-OSC	RTC-8647	T512	
L31	1st AM IF	SA-405	BC-352	12-C1	RTC-8632	T607	
L32	2nd AM IF	SA-406	BC-353	12-C2	RTC-8633	T608	
L33	10KC Filter	SA-407					
L34	Fil. Choke (2uh)	SA-416	BC-563	4606	RTC-8517	T857	
L35	Fil. Choke (2uh)	SA-416	BC-563	4606	RTC-8517	T857	

MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
M6	Tuning Cap.		FM, 3 Gang
M7	Tuning Cap.		AM, 3 Gang, (Ant. 29-435mmf, RF 22-425mmf, Osc. 24-197mmf)
M8	Switch		Function Selector, Rotary Wafer Type
M9	Switch		Power, Off-On

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY

ITEM No.	ANDREA PART No. CARTRIDGE	ANDREA PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
MG0			17	Not Req.	26S	2604 * (LP) 2605 * (78)	8TA4-S	N-8TA-S *	

ANDREA MODELS CO-V5323-5, WCO-V5323-5, WFCO-V5323-5 (Ch. V5323-5)

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE
V1	1st Video IF Amp.	6BZ6
V2	2nd Video IF Amp.	6BZ6
V3	3rd Video IF Amp. – Video Detector	6AS8
V4	Video Output – Sync Amp.	6CX8
V5	AGC Keying – Sync Sep.	6AW8A
V6	Sound IF Amplifier	6AU6
V7	Ratio Detector – AGC Clamper – AF Amp.	6T8A
V8	Sync Amp. – Vert. Mult.	6CG7
V9	Vert. Mult.– Vert. Output	[redacted]
V10	Horiz. AFC – Horiz. Osc.	6CG7
V11	Horiz. Output	6DQ6A
V12	Damper	6AU4GTA
V13	HV Rectifier	1B3GT
V14	LV Rectifier	5U4GB

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: ANDREA PART No	GENERAL ELECTRIC PART No	RCA PART No.	RAYTHEON PART No	SYLVANIA PART No.	NOTES
V15	23HP4	23CP4/GP4 ①			23CP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT.	REPLACEMENT DATA: ANDREA PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	HCE-1340	AFS2-57	B0450	FP238	TMD-3650	TVL-2764	
B	▲40	450							
C2A	■20	450	HCE-1361	AFH3-50-05	C0372	FP396.1	TMT-3739	TVL-3815.6	
B	▲30	450							
C	▲40	450							
C3	4	450	HCE-1354	PRS1710	BR445	TC897	TD-4-450	TVA-1702	
C4	4	450	HCE-1354	PRS1710	BR445	TC897	TD-4-450	TVA-1702	
C5	3	100	HCE-1367	PRS1705	BR345	TT150X2	TD-2-450	TVA-1701	

FIXED CAPACITORS

ITEM No	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.05	400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C7	1mfd	100V		P288N-1.0		CUB3W1	1DP-5-105	GEM-2I	2TM-M1
C8	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C9	40	N750 5%			TCN-39	C10Q39U		CNO-439	10TCU-Q39
C10	43	5%		1469-000043	TCZ-43	22R5Q43	CM-19B-430J		MS-443
C11	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C12	330	10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C13	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C14	330	10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C15	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C16	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C17	500	10%		1469-0005		5R5T5	CM-19B-501K	MCB245	MS-35
C18	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C19	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C20	10	N750 10%		N750-DI 10	DTN-10	C10Q10U	CCTN-100	CN7-410	10TCU-Q10
C21	6	NPO 5%				C10V6C	"		
C22	15	N073 5%					"		
C23	.25	400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C24	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.25	600V		P688N-25		CUB6S25	6DP-5-254	GEM-6025	6TM-P25
C26	300	2000V 10%					VCM-35-301K		
C27	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C30	.005	600V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50
C31	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.47	200V		P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C33	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	250	10%		1469-00025	TCZ-240	22R5T25	CM-19B-251K	MCB240	MS-325
C37	.5	200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P50
C38	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.0047	400V 10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47
C41	.0033	400V 10%		PM6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33
C42	.0033	400V 10%		V84C6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33
C43	.05	400V 10%		V84C4S5-10%		PM4S5	4DP-3-503	GEM-1615	4TM-S50
C44	.015	400V 10%		V84C4S15-10%		PM4S5	4DP-1-153		4TM-S15
C45	.1	400V 10%		V84C4P1-10%		PM4P1	4DP-3-104	GEM-1001	4TM-P10
C46	.05	400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C47	.015	400V		P488N-015	DD-153	CUB4S15	4DP-1-153	GEM-4115	4TM-S15
C48	.022	400V 10%		V84C4S22-10%		PM4S22	4DP-2-223	GEM-16122	4TM-S22
C49	.001	2000V		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV-210	BL-D20
C50	82	10%		1469-000082	TCZ-82	22R5Q82	CM-19B-820K	CNO-482	MS-482
C51	82	10%		1469-000082	TCZ-82	22R5Q82	CM-19B-820K	CNO-482	MS-497
C52	.05	400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C53	.02	600V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S20
C54	330	10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C55	.05	400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C56	.5	200V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P50
C57	330	5%		1469-00033		5R5T33	CM-19B-331J		MS-333
C58	.01	600V		P688N-01	D6-103	CUB6P1	6DP-2-103	GEM-611	6TM-S10
C59	820	10%		5R5T82		CM-19B-821K	MCB251		MS-382
C60	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C61	.0047	400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C62	.01	600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C63	.1	600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C64	.039	600V		P684CM-039	DD-403	DPM3S839	6DP-3-393	GEM-614	6P8-T39
C65	200	2000V 10%					VCM-20-201K		
C66	200	2000V 10%					VCM-20-201K		
C67	75	2000V 10%				HVA20Q75	VCM-20-750K		
C68	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C69	.01	1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	2HV-110	BL-S10
C70	.01	1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	2HV-110	BL-S10
C71	.01	1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	2HV-110	BL-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: ANDREA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS–IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1. 25meg	½	GRV-846-1	B-742	A47-1.5meg-S	Q11-138	U155	Vert. Hold
B	Shaft			Not Req.	K2S-3	Not Req.	Not Req.	
R2A	50K	½	GRV-847-1	B-31	A47-50K-S	Q11-123	U35	Horiz. Hold
B	Shaft			Not Req.	K2S-3	Not Req.	Not Req.	
R3A	150K	½	GRV-887	B-43	A47-150K-S	Q11-328	RU154L	Brightness
B	Shaft			Not Req.	K2S-3	Not Req.	SL3500	
C	Bushing			Not Req.	Not Req.	Not Req.	SL38	
R4A	500Ω	½	A33-0890	B-415	A47-500-S	Q11-105		Contrast
B	Shaft			Not Req.	K2S-3	Not Req.		
R5A	1meg	½	GRV-866	TT-69	B47-1meg-S	Bil-137	TA16L	Height
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R6A	1. 5meg	½	GRV-861	TT-743	B47-1.5meg-S	Bil-138	TA15L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R7A	10K	½	GRV-876	TT-14	B47-10K-S	Bil-116	TA14L	Horiz. Drive
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise noted.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	180K			
R9	6. 8meg			
R10	3300Ω			
R11	1000Ω			
R12	68Ω			
R13	6800Ω			
R14	1000Ω			
R15	1000Ω			
R16	47Ω			
R17	1000Ω			
R18	1000Ω			
R19	220Ω			
R20	10K			
R21	4700Ω			
R22	12K			
R23	10K 2W			
R24	10K 2W			
R25	18K 2W			
R26	2200Ω			
R27	150K			
R28	150K 1W			
R29	47K			
R30	100K			
R31	10K			
R32	150K			
R33	22K			
R34	82K			
R35	6800Ω			
R36	470K			
R37	2. 2meg			
R38	47K			
R39	10K 1W			
R40	3300Ω 1W			
R41	10K 1W			
R42	1000Ω			
R43	100Ω			
R44	22K			
R45	1000Ω			
R46	33Ω			
R47	18K			
R48	1meg			
R49	100K			
R50	1meg			
R51	1meg			
R52	47K			
R53	47K			
R54	150K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R55	39K			
R56	47K			
R57	18K			
R58	3. 3meg			
R59	1meg			
R60	270K			
R61	82K			
R62	1. 2meg			
R63	470K			
R64	220K			
R65	470K			
R66	330K			
R67	18K			
R68	10K			
R69	18K			
R70	470K			
R71	22K			
R72	10K			
R73	18K			
R74	180Ω			
R75	1500 2W			
R76	220Ω			
R77	220Ω			
R78	3Ω (Cold)			
R79	100K			
R80	330K			
R81	820K			
R82	330K			
R83	3900Ω			
R84	150K			
R85	82K			
R86	8200Ω			
R87	330K			
R88	27K			
R89	100Ω			
R90	470K			
R91	1000Ω			
R92	6800Ω 2W			
R93	390K			
R94	2. 2meg			
R95	470Ω			
R96	1. 2Ω			
R97	3300Ω 15W	PW15-3300	15W-SQ-3300	
R98	6500Ω 15W	PW15-6500	15W-SQ-6500	
R99	330K			
R100	22K			
R101	1meg			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ANDREA PART No.	REPLACEMENT DATA
K1	Vert. Integrator	.002mfd, .005mfd, .005mfd, 8200Ω, 8200Ω, 22K	FM 5289	Aerovox PA-100 Centralab PC-100 Mallory MS-100 Sprague V1/V3

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	47. 25MC Trap	8A-381	TV-153	6225	RTC-8556	T218	
L2A	1st Video IF	8A-377C	TV-156	6231	RTC-8552	T224	
B	41. 25MC Trap						
L3	2nd Video IF	8A-378	TV-130	6219	RTC-8551	T217A	
L4	3rd Video IF	8A-379	TV-130	6219	RTC-8551	T217A	
L5	4th Video IF	8A-380	TV-126	6234	RTC-8563	T211	
L6	RF Choke (12. 6uh)	8A-420	BC-566	4632	RTC-8523	T861	
L7	Peaking (440uh)	8A-423	TV-302	6136	RTC-8579	T322	
L8	Peaking (440uh)	8A-423	TV-302	6136	RTC-8579	T322	
L9A	Peaking (280uh)	8A-424	TV-198	6130	RTC-8576	T316	
B	Sound IF		TV-151	1469	RTC-8502	T249	
L10	Peaking (270uh)	8A-364	TV-198	6130	RTC-8576	T316	
L11	Ratio Detector	8A-422	TV-115	6205	RTC-8520	T237	
L12	RF Choke (12. 6uh)	8A-420	BC-566	4632	RTC-8523	T861	
L13	Fil. Choke (2uh)	8A-418	BC-563	4606	RTC-8517	T857	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L14A	Horiz. Osc.	8A-335-1	TV-162	6183A	RTC-8613	H8-9		T102	
B	Horiz. Waveform								
L15	Width Coil	A-51-0418	MWC-6	6322	WC-8A	WC-22 ①	WLC-5	T107	

① Drill new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: ANDREA PART No	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L16	.330A	45Ω	1 Hy.	A52-3107		C-2328 ①	28C92 ①	C-28X	① Drill new mounting hole(s)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: ANDREA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1. 9A	560VCT @ .330A DC	5V ② 3A	ST-3105 ①					① 60 Cycle Type.
	SEC. 3	SEC. 4	SEC. 5						
	12.6VCT ② 6A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T2	Vert. Output	A-52-3106				A-113X	① Use original yoke damping network, rear cover and centering device. ② Connect same as original.
T3	Yoke (Horiz. 19MH) 110Ω (Vert. 13. 5MH) Rear Cover and Centering Device	ST-3096		DY-27A ① ②	Y-52 ① ②	Y-52-2 ②	
T4	Horiz. Output	ST-3095-2	HVO-81 *	HO-289 *	FLY-150 *	D-160 *	

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	9	5	5	8
	6	7	4	4	4
	5	5	3	3	3
	4	3	2	2	6
	3	3	2	2	2
	2	1	1	1	1
Connect Width Coil Across	3 & 2	3 & 1	2 & 1	2 & 1	2 & 1

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: ANDREA PART No. FUSE	ANDREA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	2 1/2A 125V S/B			31302.5 (3AG 2 1/2A 125V S/B)	34200I	MDL 2 1/2	HKP
M2	3AG	2 1/2A 125V S/B			31302.5 (3AG 2 1/2A 125V S/B)	34200I	MDL 2 1/2	HKP
M3	3AG	1/4A 250V S/B			313.250 (3AG 1/4A 250V S/B)	35700I	MDL1/4	4405

MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
M4	Tuner	A27-5638	VHF, Complete * STANDARD COIL REPLACEMENT #GG-4220A
M5	Relay		Power

* Use original shafts and recommended B + voltages for replacement tuner.

WIRING DATA

High Voltage Lead	Use BELDEN No. [redacted]
Shielded Hook-up Wire	Use BELDEN No. 8880 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

AMP PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ANDREA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	9200Ω CT	3-4Ω	A52-3119	A-2901	A-3335	24S06	S-53X	
T7	9200Ω CT	3-4Ω	A52-3119	A-2901	A-3335	24S06	S-53X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ANDREA PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	A53-4052	12A31Z6.4	
SP2	6"	PM	6-8Ω	SL-4034-1	6A31Z6.4	
SP3	3½"	PM	3-4Ω		3A15TZ3.2	
SP4	12"	PM	6-8Ω	A53-4052	12A31Z6.4	
SP5	6"	PM	6-8Ω	SL-4034-1	6A31Z6.4	
SP6	3½"	PM	3-4Ω		3A15TZ3.2	

VHF TUNER PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •		• SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V301	RF Amplifier	6FH5	V302	Mixer - Osc.	6CG8A

FIXED CAPACITORS

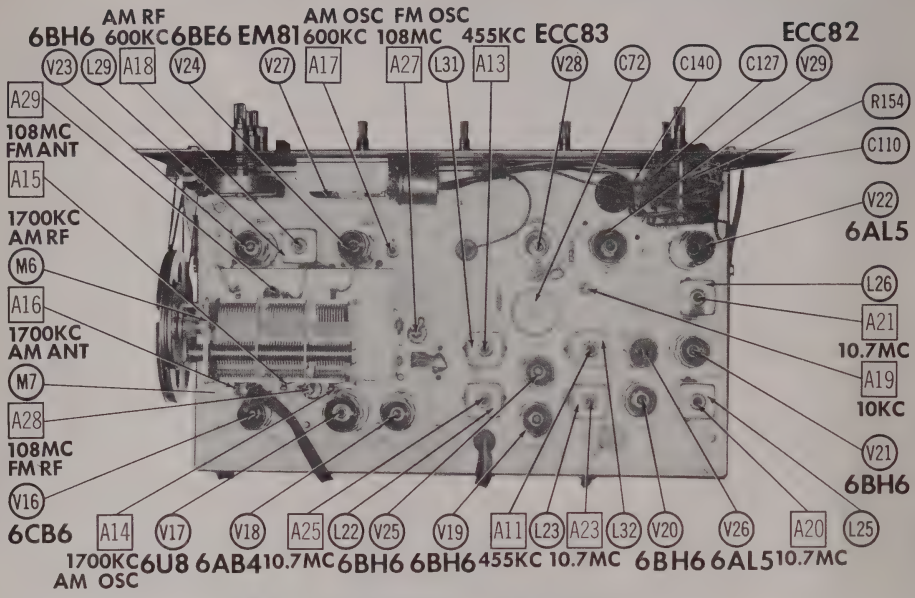
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	100 N150					*		10TCP-T10
C302	100 N150					*		10TCP-T10
C303	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C304	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C305	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C306	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C307	30							
C308	28		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C309	.001		EF-001	MFT-1000		CCF-102	CT280A	
C310	1.8-7			829-7				
C311	100		EF-0001	MFT-100				
C312	.5-3.5							
C313	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C314	.5-3.5							
C315	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C316	27 N470 5%					*		
C317	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C318	6.8		NPO-DI 68	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C319	18 N330					*		10TCS-Q18
C320	.001		EF-001	MFT-1000		CCF-102	CT280A	
C321	.001		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

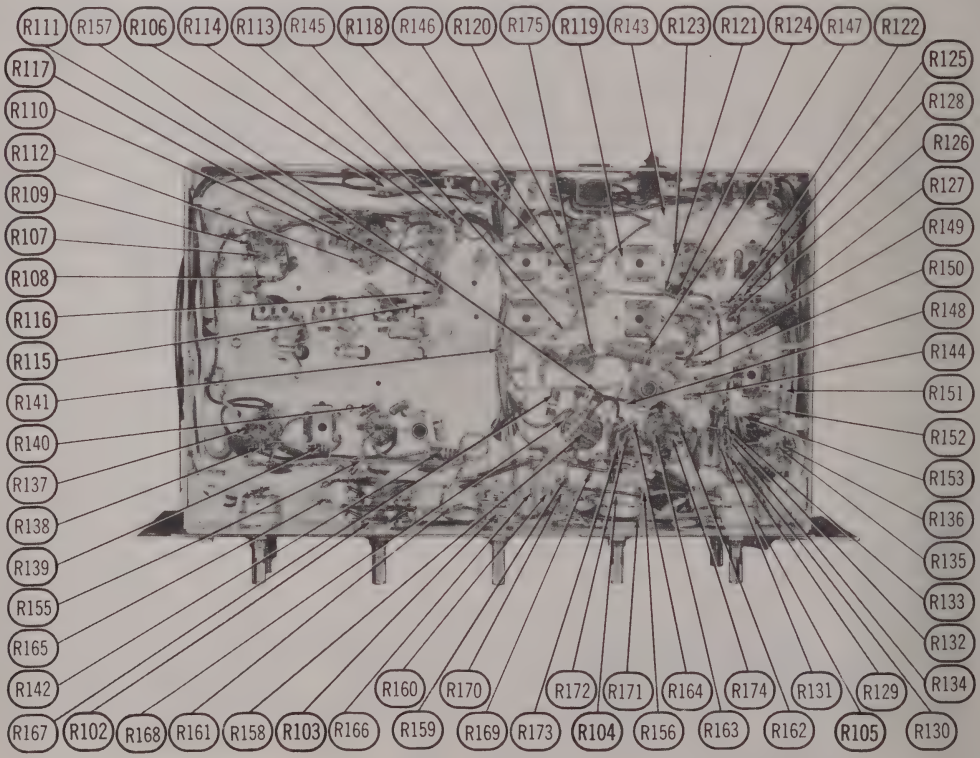
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R301	560K				R306	220K			
R302	560K				R307	1000Ω			
R303	47K				R308	4700Ω			
R304	1000Ω				R309	4700Ω			
R305	2700Ω								



FM-AM TUNER - TOP VIEW



FM-AM TUNER VIEW - RESISTOR IDENT.

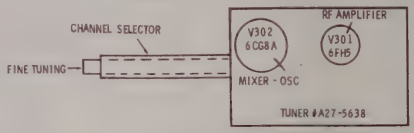
TV CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC. IDENT.

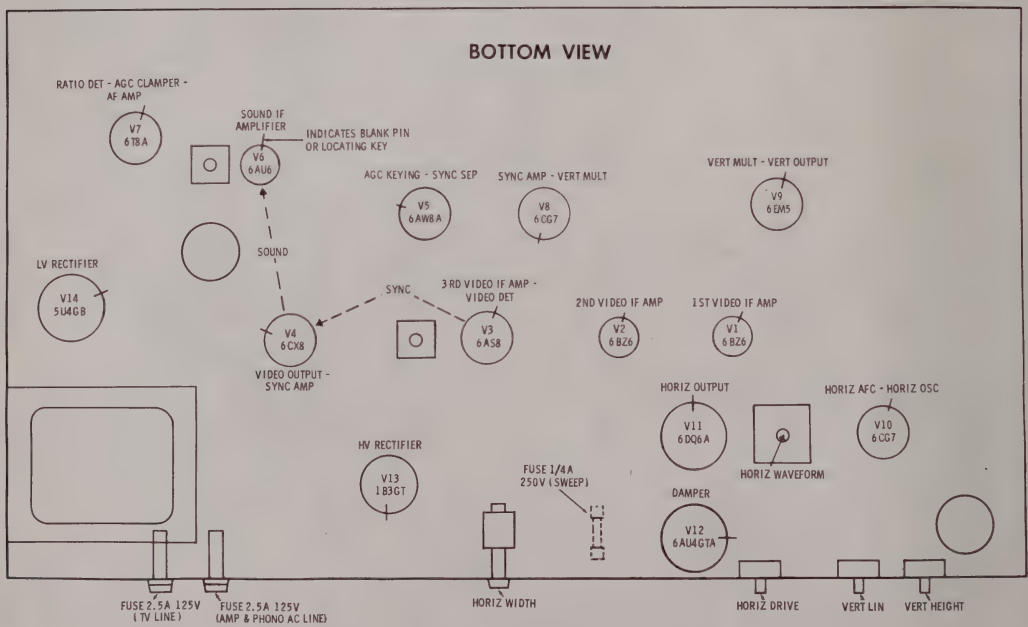
TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	68Ω	FIL	FIL	†3300Ω	†3300Ω	0Ω		
V2	6BZ6	150K	47Ω	FIL	FIL	†3300Ω	†3300Ω	0Ω		
V3	6AS8	†4300Ω	.1Ω	220Ω	FIL	FIL	4700Ω	220Ω	.1Ω	†4300Ω
V4	6CX8	0Ω	12K	†9100Ω	FIL	FIL	•30Ω	4700Ω	†18K	†5000Ω
V5	6AW8A	0Ω	2.7meg	†49K	FIL	FIL	†2300Ω	†9100Ω	†22K	250K
V6	6AU6	2.8Ω	0Ω	FIL	FIL	†3300Ω	†3300Ω	100Ω		
V7	6T8A	INF	22K	INF	FIL	FIL	330K	0Ω	600K	†94K
V8	6CG7	• †700K	• 1.8meg	0Ω	FIL	FIL	†13K	†49K	10K	NC
V9	6EM5	†375Ω	TP	• 1.6meg	FIL	FIL	• 1.6meg	0Ω	NC	†675Ω
V10	6CG7	• †30K	840K	380K	FIL	FIL	†37K	450K	0Ω	NC
V11	6DQ6A	TP	FIL	TP	†7800Ω	470K	TP	FIL	0Ω	TOP CAP †12Ω
V12	6AU4GTA	TP	NC	300K	NC	†45Ω	TP	FIL	FIL	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †340Ω
V14	5U4GB	TP	¶6000Ω	NC	22Ω	NC	24Ω	NC	¶6000Ω	
V15	23HP4	FIL	5Ω	†390K	†150K	NC	NC	•190K	FIL	
V201	6FH5	0Ω	375K	FIL	FIL	†3300Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†7000Ω	0Ω	FIL	FIL	†3300Ω	†2300Ω	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 2 OF V14.
† MEASURED FROM PIN 3 OF V12.

NC NO CONNECTION
TP TIE POINT



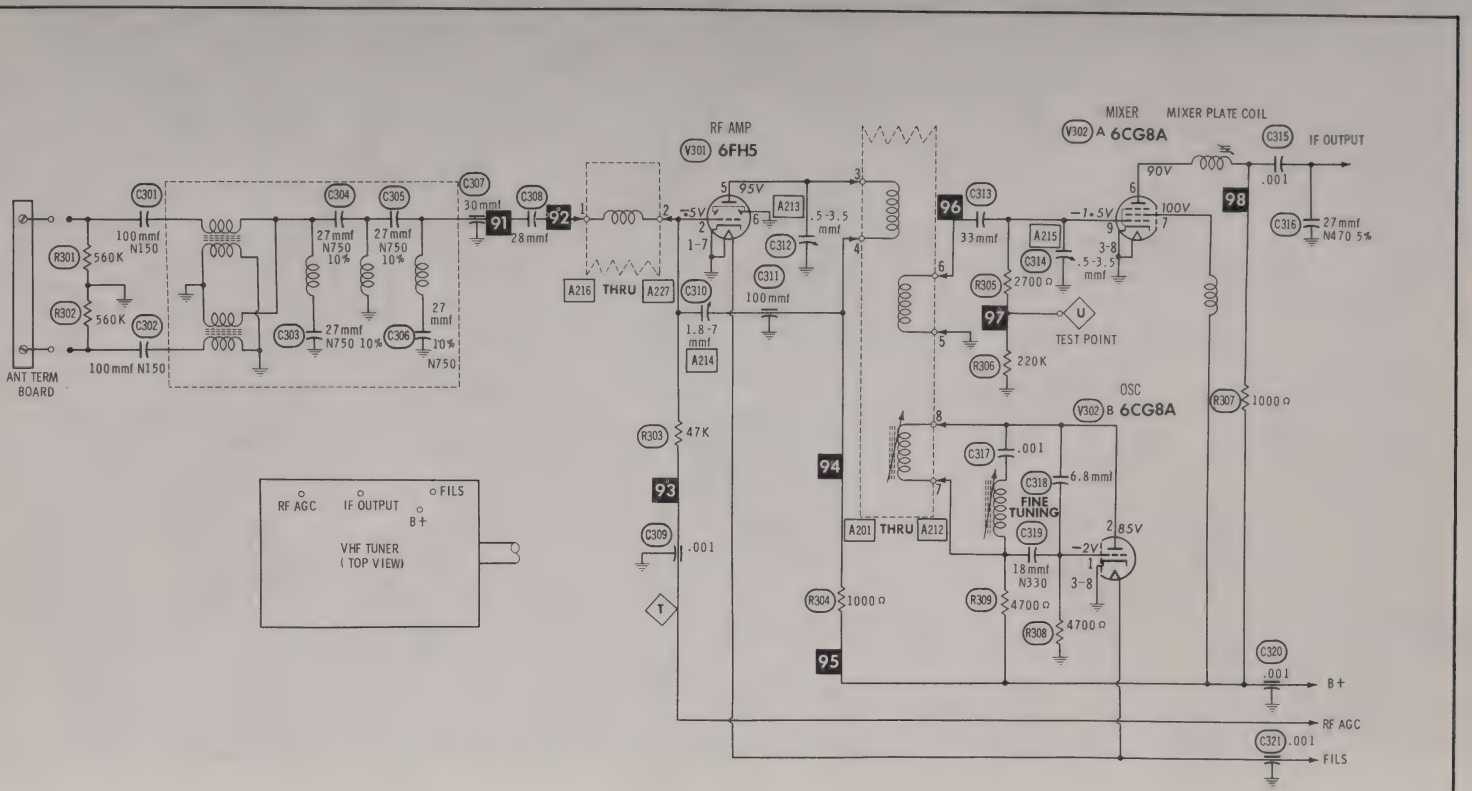


TV TUBE PLACEMENT CHART

AMP CHASSIS

(TOP VIEW)

(BOTTOM VIEW)



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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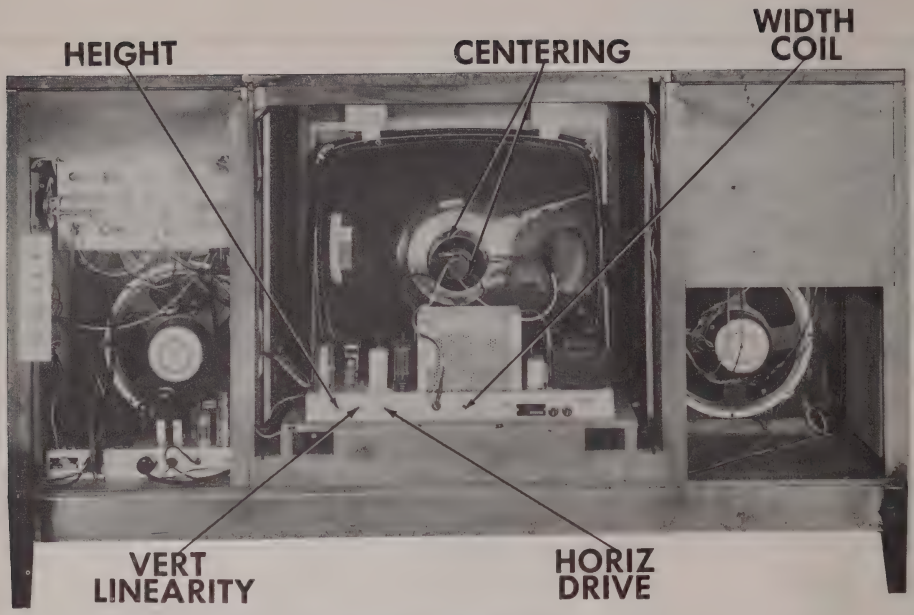
VHF TUNER SCHEMATIC

ANDREA MODELS CO-VS323-5, WCO-VS323-5,
WFCO-VS323-5 (Ch. VS323-5)



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Adjust the Horizontal Drive control until a vertical white line appears in the picture, then back off until the drive line just disappears.

Set Horizontal Frequency Slug (B1) $\frac{1}{2}$" above can.

Connect low capacity probe of scope to point (P). Low side to chassis. Set Brightness control for normal brightness.

Turn Horizontal Hold control fully clockwise.

Adjust Horizontal Waveform Slug (B2) for waveform similar to Fig. 2 with the broad and narrow peaks of equal amplitudes.

Turn Horizontal Frequency Slug (B1) counterclockwise until the picture drops out of sync, then turn clockwise until picture locks in and straightens out at top. Continue to turn clockwise one half turn.

Set Horizontal Hold control to the center of is lock-in range.

Adjust Horizontal Width Slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

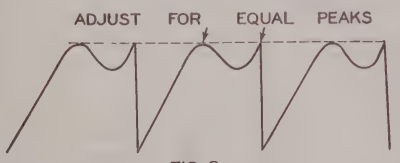
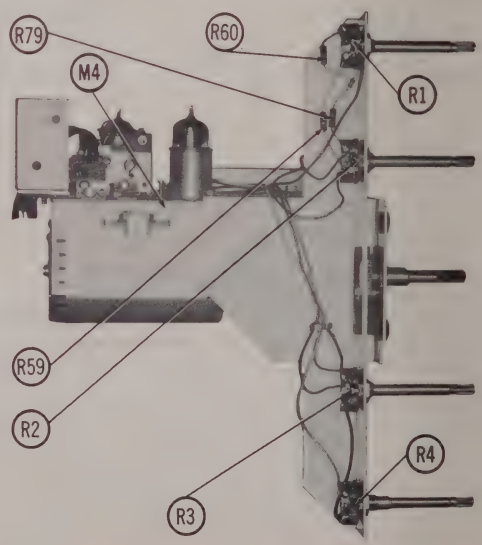


FIG. 2

DISASSEMBLY INSTRUCTIONS

TV CHASSIS & PICTURE TUBE ASSEMBLY REMOVAL

1. Remove 7 wood screws holding rear cover. Remove rear cover.
2. Remove knobs.
3. Remove 2 screws holding VHF Tuner and TV control assembly.
4. Remove FM-AM Tuner Power Plug from TV chassis.
5. Remove TV Audio Plug.
6. Remove 4 chassis bolts and 2 at top holding picture tube mounting bracket to cabinet.
7. Remove chassis and picture tube assembly.



VHF TUNER—CONTROL PANEL

PHOTOFACT® Folder

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

MODEL G2120W

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

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PHOTOFACT® Folder

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

MODEL G2120W

TRADE NAME	ZENITH MODELS	TV Chassis	Remote Control	VHF Tuner	UHF Tuner
	G2101C, F; G2102L, R, W	16G20		175-202	
	G2120E, M, R, W	16G20		175-176	
	G2213G	16G20Q	S-52223	175-142 or 175-302	
	G2101CU, FU; G2102LU, RU, WU	16G20U		175-201	175-8
	G2120EU, MU, RU, WU	16G20U		175-175	175-8

MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois
TYPE SET	Television Receiver (16G20Q Chassis with Remote Control)
TUBES	TV: VHF - Sixteen, UHF - Seventeen; Remote Control Receiver: Six
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 16G20 Chassis: 170 Watts, 1.5 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A 5 Amp. (Line) fuse, 7/10 Amp. (LV Supply) fuse, and a fuse wire are used for receiver protection. For fuse location, see "Tube Placement Chart". For fuse wire location, see M3 in Photo, "Chassis - Bottom View".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up VHF Oscillator, remove Channel Selector knob, Fine Tuning knob, and Trim plate. Trim plate is removed by turning slightly counterclockwise.

AGC CONTROL

The AGC may be varied by means of an AGC Control. (See "Tube Placement Chart" for location.)

FOCUS

The focus may be varied by means of a Focus Control. See "Tube Placement Chart" for location.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock Control. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz Control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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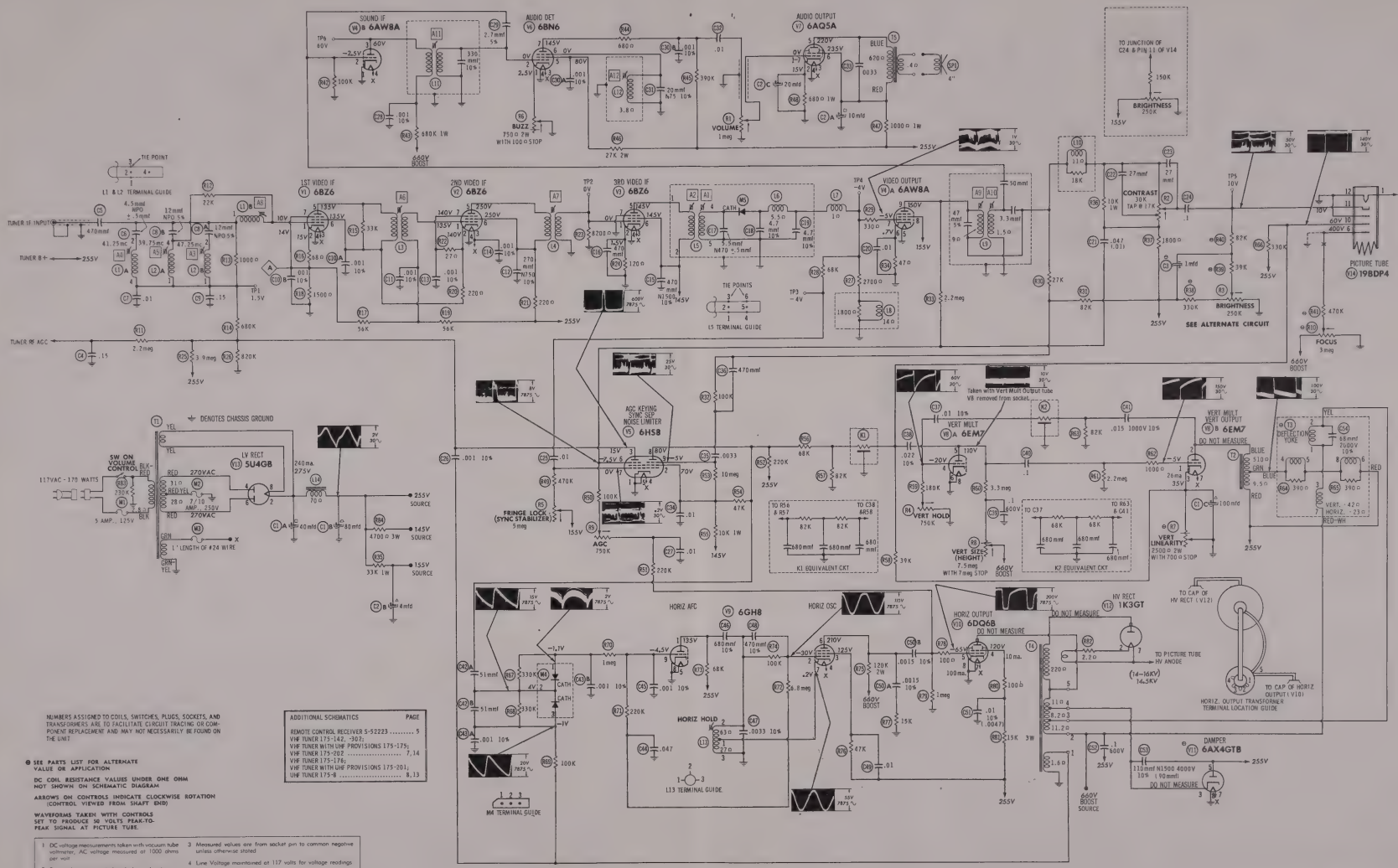
KA953

SET 547 FOLDER 2


SOUND IF V4-B 6AW8A
AUDIO DET V6 6BN6
AUDIO OUTPUT V7 6AQ5A
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6BZ6
VIDEO OUTPUT V4-A 6AW8A
AGC KEYING SYNC SEP NOISE LIMITER V5 6HS8
VERT MULT V8-A 6EM7
VERT MULT VERT OUTPUT V8-B 6EM7
LV RECT V11 5U4GB
HV RECT V13 1K3GT
HORIZ AFC V9 6GH8
HORIZ OSC
HORIZ OUTPUT V10 6DQ6B
DAMPER V11 6AX4GTB
PICTURE TUBE V14 19BDP4
DENOTES CHASSIS GROUND
SEE ALTERNATE CIRCUIT
DO NOT MEASURE
K1 EQUIVALENT CKT
K2 EQUIVALENT CKT
L1 & L2 TERMINAL GUIDE
L5 TERMINAL GUIDE
M4 TERMINAL GUIDE
L3 TERMINAL GUIDE
HORIZ. OUTPUT TRANSFORMER TERMINAL LOCATION GUIDE
TUNER IF INPUT
TUNER B+
TUNER RF AGC
SW ON VOLUME CONTROL
117VAC - 170 WATTS
5 AMP., 125V
7.5 AMP., 250V
L' LENGTH OF #24 WIRE
TO JUNCTION OF C24 & PIN 11 OF V14
TO CAP OF HV RECT (V12)
TO PICTURE TUBE HV ANODE
TO CAP OF HORIZ OUTPUT (V10)
660V BOOST SOURCE
255V SOURCE
145V SOURCE
155V SOURCE
VOLUME 1meg
BRIGHTNESS 250K
CONTRAST 30K TAP @ 17K
FOCUS 3meg
VERT HOLD 750K
VERT SIZE (HEIGHT) 7.5meg WITH 7meg STOP
VERT LINEARITY 2500Ω 2W WITH 700Ω STOP
FRINGE LOCK (SYNC STABILIZER) 5meg
AGC 750K
HORIZ HOLD
BUZZ 750Ω 2W WITH 100Ω STOP
TIE POINT
TIE POINTS
Taken with Vert Mult Output tube V8 removed from socket

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

ADDITIONAL SCHEMATICS	PAGE
REMOTE CONTROL RECEIVER 5-52223	5
VHF TUNER 175-142, -302; VHF TUNER WITH UHF PROVISIONS 175-175;	
VHF TUNER 175-202	7,14
VHF TUNER 175-176; VHF TUNER WITH UHF PROVISIONS 175-201;	
UHF TUNER 175-8	8,13

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied

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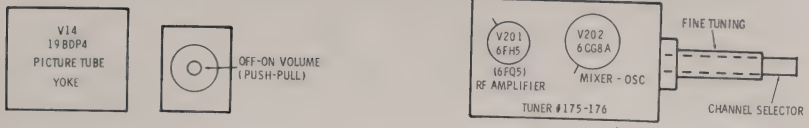
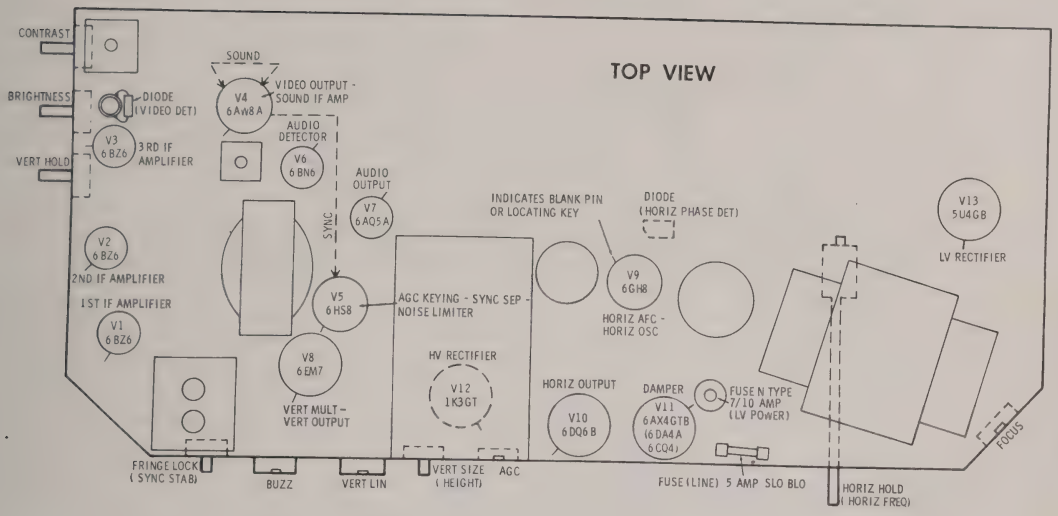
ZENITH CHASSIS 16G20, 16G20Q, 16G20U

TV TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Fuse (LV Power), V13, Fuse Wire (Fil.)

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V14
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V8
Horiz. off freq. Diode (Horiz. Phase Det.), V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru 470mmf capacitor to TP-2. Low side to chassis.	44.0MC (10MC Swp.)	39.75MC 41.25MC 45.75MC	Between two channels	Vert. Amp. thru 10K to point TP-4. Low side to chassis. (Across Video Detector load.)	A1, A2	Set sweep output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. If the desired response cannot be obtained, see that the cores are entering their respective windings from opposite ends.
2.	High side to ungrounded tube shield floating over Mixer-Osc. (V202). Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A3, A4, A5	Connect a clip lead from point TP-3 to chassis. Connect a clip lead from TP-1 to point (A). Use high scope gain and adjust A3 thru A5 for MINIMUM amplitudes at markers as shown in Fig. 2. A3 controls 47.25MC, A4 controls 41.25MC and A5 controls 39.75MC.
3.	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A6, A7, A8, & Mixer Plate Coil	Disconnect the clip lead from point (A) and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A6 affects the low frequency side and A7 affects the high frequency side.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver terminals.
Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the Audio Detector as evidenced by a hiss similar to super-regeneration in the sound. Adjust A9, A10, A11 and A12 for maximum sound and best quality. Adjust the Buzz control for MINIMUM buzz. If the hiss disappears during alignment, further reduce the signal until the hiss returns.

FIG. 1

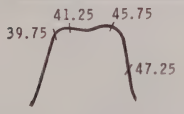


FIG. 2

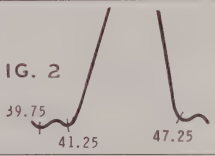
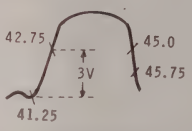
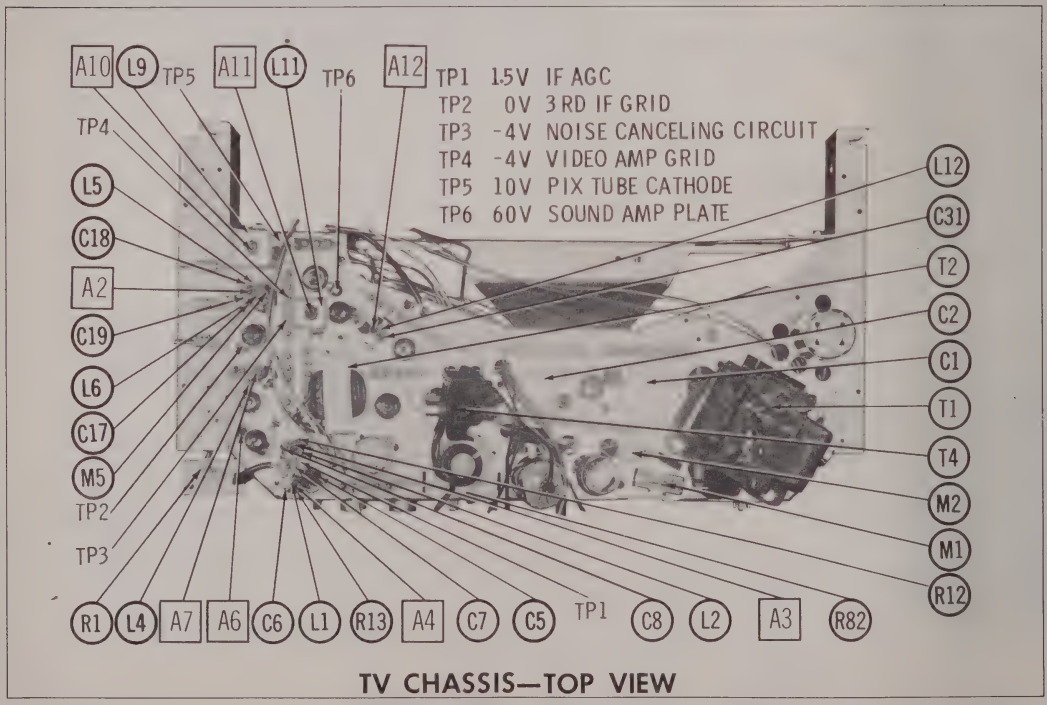
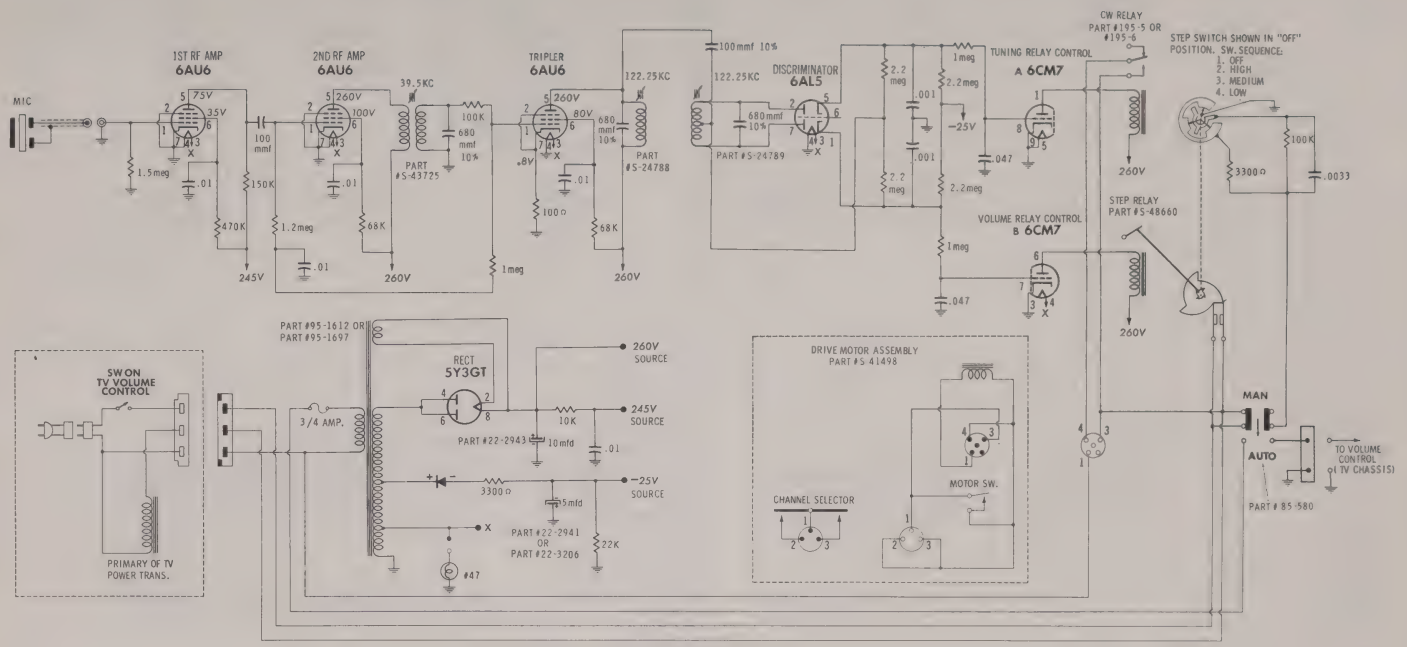


FIG. 3





TV CHASSIS—TOP VIEW



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REMOTE CONTROL RECEIVER S-52223

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

VHF TUNER ALIGNMENT INSTRUCTIONS

175-175, -176

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213, A214, A215..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set the Fine Tuning to the center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

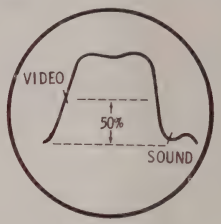


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Restore bias.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by compressing or expanding coil turns.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

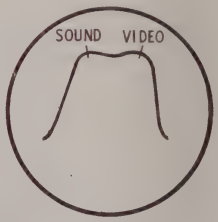


FIG. 202

VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS — 175-142, -302

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202, A203 .... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2526
A204 thru A215 .... GENERAL CEMENT #8282, 8806, 8606L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

VHF RF AND MIXER ALIGNMENT

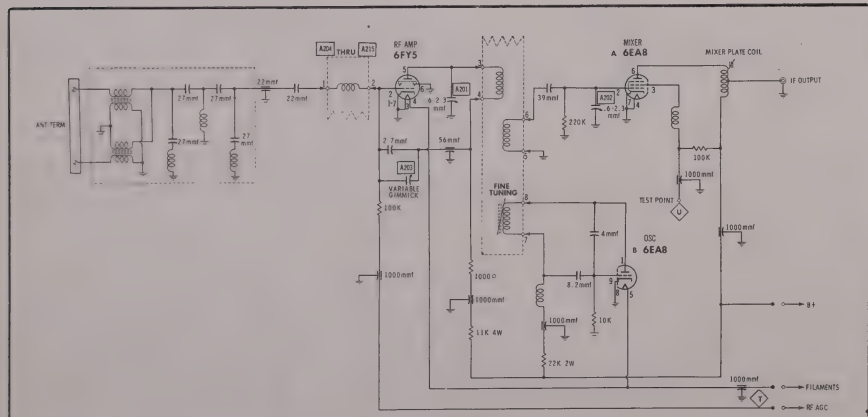
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 4.5 volt bias supply to point Ⓨ. Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓨ. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	213MC	211.25MC 215.75MC	13		A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
		207MC	205.25MC 209.75MC	12		A205	
		201MC	199.25MC 203.75MC	11		A206	
		195MC	193.25MC 197.75MC	10		A207	
		189MC	187.25MC 191.75MC	9		A208	
		183MC	181.25MC 185.75MC	8		A209	
		177MC	175.25MC 179.75MC	7		A210	
		85MC	83.25MC 87.75MC	6		A211	
		79MC	77.25MC 81.75MC	5		A212	
		69MC	67.25MC 71.75MC	4		A213	
		63MC	61.25MC 65.75MC	3		A214	
		57MC	55.25MC 59.75MC	2		A215	

FIG. 201

VHF OSCILLATOR ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



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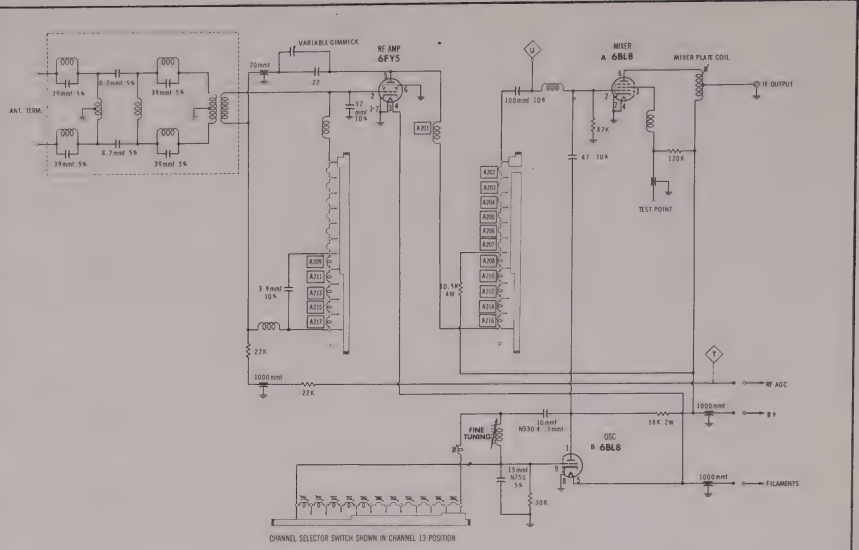
VHF TUNER 175-142, -302



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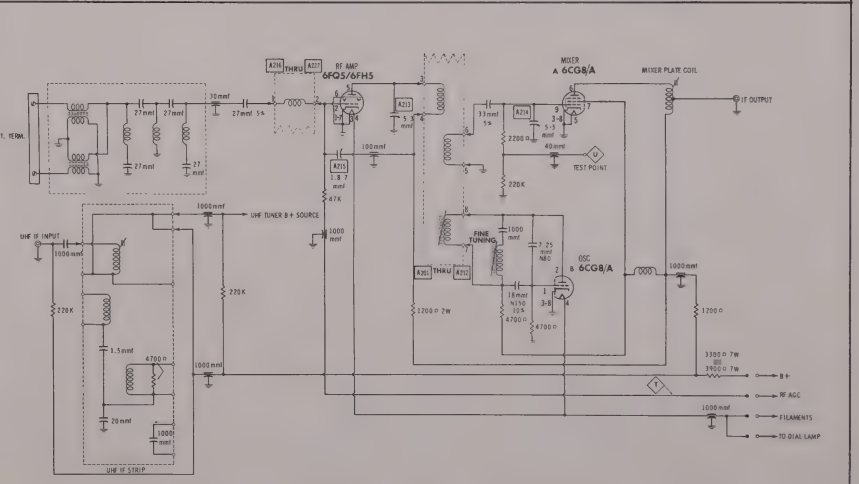
VHF TUNER 175-202



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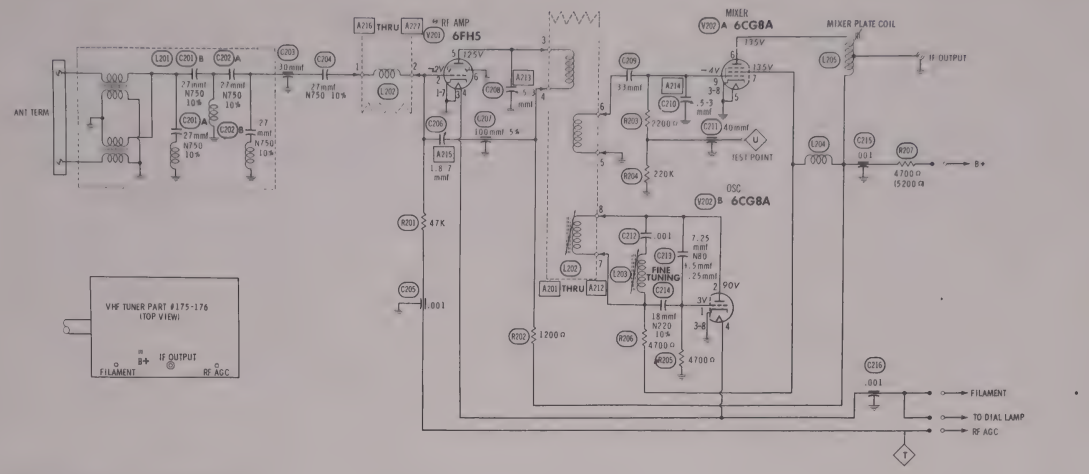
VHF TUNER WITH UHF PROVISIONS 175-175

ZENITH CHASSIS 16G20, 16G20Q, 16G20U

FOLDER 2



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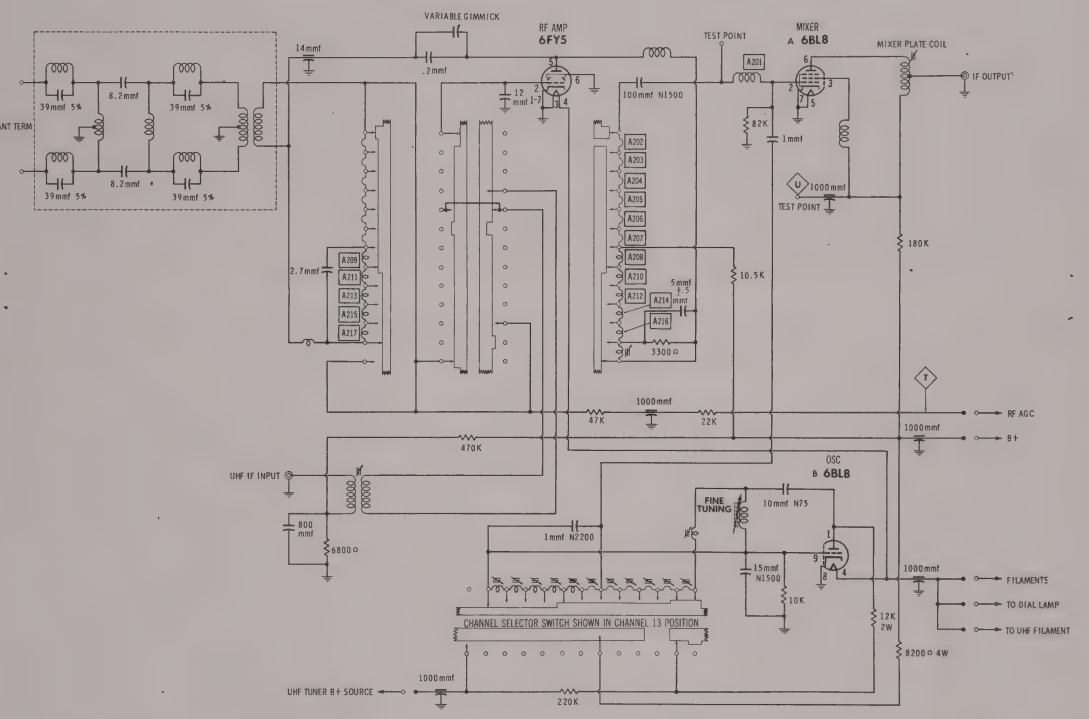
VHF TUNER 175-176



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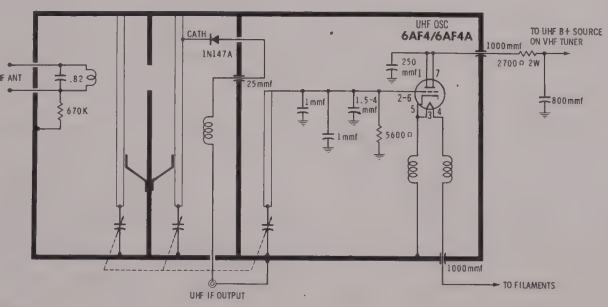
VHF TUNER WITH UHF PROVISIONS 175-201



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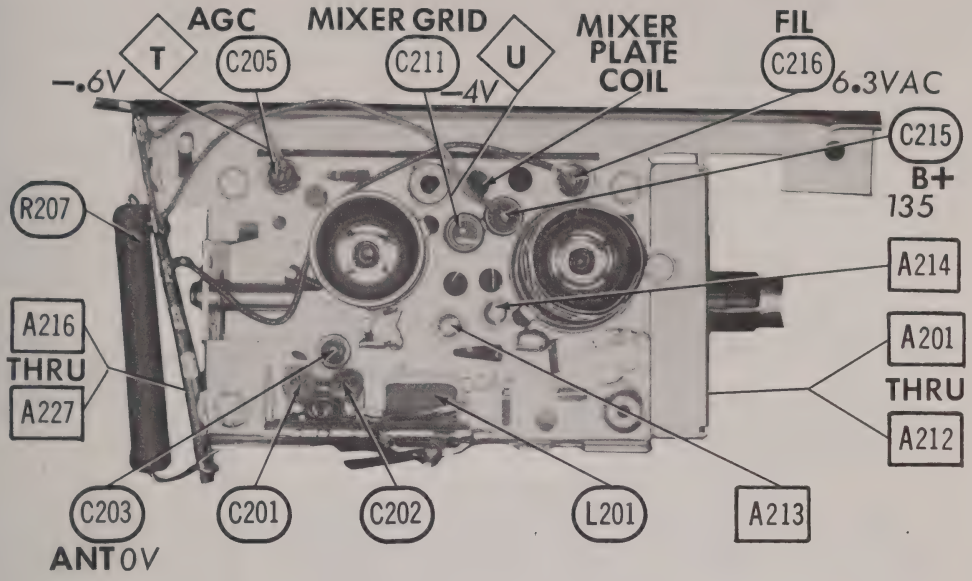
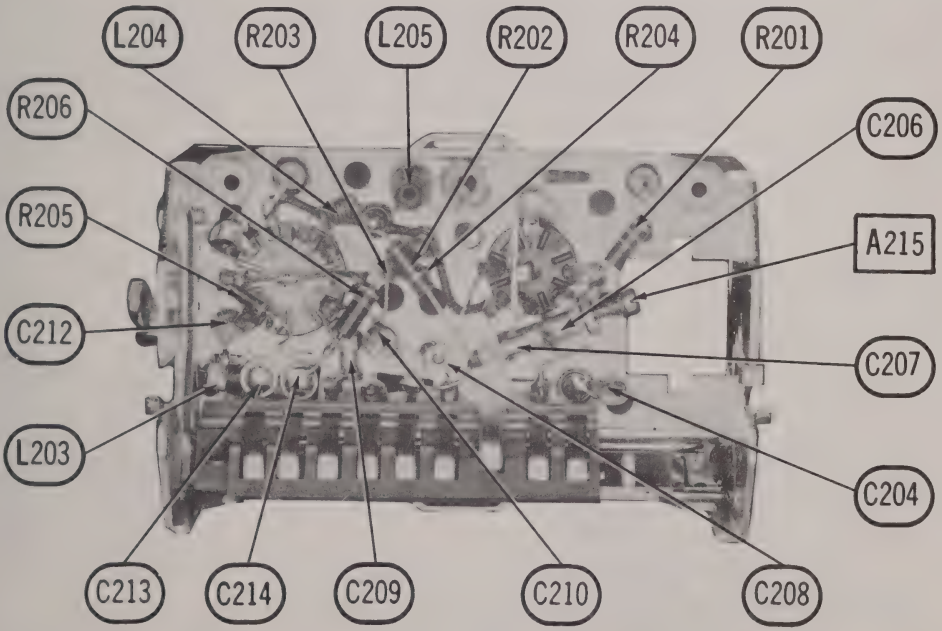
UHF TUNER 175-8



VHF TUNER 175-176 - TOP VIEW



VHF TUNER 175-176 - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE
V1	1st IF Amplifier	6BZ6
V2	2nd IF Amplifier	6BZ6
V3	3rd IF Amplifier	6BZ6
V4	Video Output - Sound IF Amp.	6EM7 6GJ8
V5	AGC Keying - Sync Sep. - Noise Limiter	6AW8A 6HS8
V6	Audio Detector	6BN6 *
V7	Audio Output	6AQ5A
V8	Vert. Mult. - Vert. Output	6EM7 6GJ8
V9	Horiz. AFC - Horiz. Osc.	6DQ8
V10	Horiz. Output	6DQ8B
V11	Damper	6AX4GTB (6DA4A, 6CG4)*
V12	HV Rectifier	1X2CT
V13	LV Rectifier	5U4GB

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: ZENITH PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V14	19BDP4		19BDP4 ①		19BDP4 ③	① Aluminized ③ Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	400	22-3123	AFH53-121-50	B0715	FP229.8	TMD-2550	TVL-2711	
B	▲80	400			BR8045	TC78	TD-40-450	TVA-1712	
C	▲100	50							
C2A	▲10	400	22-2744	AFH53-180	C0910	FP368.68	TMT-3459	TVL-3655	
B	▲4	350							
C	20	25							
C3	1	350	22-3496	PRS1700	BR145	TC595	TD-2-450	TVA-1700	Note 1

Note 1. May not be used in some versions.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.15	200V		P388N-15		CUB3P15	3DP-3-154	GEM-2015	3TM-P15
C5	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C6	4.5	NPO ±.5mmf		NPO-DI 5.0		C10V5C	CCTO-4R5		10TCC-V50
C7	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8A	12	NPO 5%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
B	12	NPO 5%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C9	.15	200V		P388N-15		CUB3P15	3DP-3-154	GEM-2015	3TM-P15
C10A	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
B	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C11	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C12	270	N750	10%		TCN-270	C10T27U	CCTN-270	CNT-327	10TCU-T27
C13	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C14	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C15	470	N1500	10%	#23-3363					
C16	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C17	5.5	N470	±.5mmf	#23-3321					
C18	4.7		10%		TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C19	4.7		10%	NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C20	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.047	400V	(.01) †	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C22	27			SI 27	D6-270	L10Q27	CCD-270	GP427	10TS-Q27
C23	27			SI 27	D6-270	L10Q27	CCD-270	GP427	10TS-Q27
C24	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C25	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C27	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C29	2.7		5%	#23-3405					10TCU-V27
C30A	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
B	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C31	20	N75	10%	#23-3139					
C32	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.0033			BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C34	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	.0033			BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C36	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C37	.01	400V	10%	V84C4S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S10
C38	.022	400V	10%	V84C4S22-10%		PM4S22	4DP-2-223	GEM-1612	4TM-S22
C39	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C40	.1	400V		P488N-1	DF-104	CUB4P10	4DP-3-104	GEM-401	4TM-P10
C41	.015	1000V	10%	P1064CM-DI5		DPMS15S15	16DP-4-153		10TM-S15
C42A	51			DI-50	DD-510	L10Q51	CCD-500	GP450	10TS-Q50
B	51			DI-50	DD-510	L10Q51	CCD-500	GP450	10TS-Q50
C43A	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
B	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C44	.047	200V		P388N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C45	.001		10%	DI-1000	DD-102	5R5DI	CCD-102	GP210	10TS-D10
C46	680		10%	1469-00068		5R5T68	CM-18B-681K	MCJ349	M3-J68
C47	.0033	400V	10%	V84C4D33-10%		PM6D33	5DP-1-332	GEM-16233	5TM-D33
C48	470		10%	1469-00047		5R5T47	CM-19B-471K	MCJ344	M3-J47
C49	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C50A	.0015		10%	DI-1500	DD-152	BYA10D15	CCD-152	GP215	10TS-D15
B	.0015		10%	DI-1500	DD-152	BYA10D15	CCD-152	GP215	10TS-D15
C51	.01		10%	DI-10000	DD-103		CCD-103		10TS-S10
C52	.1	600V	(.0047) †	P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C53	110	4000V	N1500 10% (90) †						
C54	68	2000V	10%			HVA20Q68	VCM-20-680K	3DY-468	

▲ Zenith Part Number † Alternate Value
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	63-4661	APL-697	C47S-1meg-S	B11-137 *	PP16L	Volume
B	Shaft			AK-33	RS-3/16	Not Req.	D6-37	
C	Switch			Not Req.	Not Req.	SK3 *	Not Req.	Push-Pull Off-On
R2A	30K 17K Tap	½	63-4493			B20-12LX	UT-415	Contrast
B	Shaft					SK9	D6-37	

CONTROLS (cont)

ITEM No.	RATING: RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R3A	250K	½	63-4492	AB-50	A47-250K-S	B11-130	U46	Brightness
B	Shaft			AK-33	RS-3/16	SK9	D6-37	
R4A	750K	½	63-4491	AB-66	A47-750K-S	B11-136	U54	Vert. Hold
B	Shaft			AK-33	RS-3/16	SK9	D6-37	
R5	5meg	½	63-4050	TT-57	B47-5meg-S	HLC-5	PTA56L	Fringe Lock (Sync Stab.)
R6	750Ω 100Ω Stop	2(WW)	63-3284	WN-751 **	39-800 **	L12-850	FL750 **	Buzz
R7	2500Ω 700Ω Stop	2(WW)	63-4815 ①	WN-302	39-3000-700	L12-2500-700	FL-2.5K	Vert. Linearity
R8	7.5meg 7meg Stop	½	63-4647	TT-90	B47-7.5meg-S	HLC-6	SU-69	Vert. Size (Height)
R9A	750K	½	63-3263	AB-66	A47-750K-S	B11-136	PTA754L	AGC
B	Shaft			AK-1	FKS1-4	TM4	Not Req.	
R10	5meg	½	63-4455 ②	TT-54	B47-5meg-S	HLC-3	SU-59	Focus

① Some versions may use Part #63-4446 with same replacements as above.
② Not used in some versions.
* Factory assembled Part #PPG1L-137 (SK8).
** Use 100Ω 2W Resistor in series with terminal.
† Use 680Ω 2W Resistor in series with terminal.
ϕ Use 470K Resistor in series with right hand terminal, viewed shaft end terminals down.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise noted.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	2.2meg			
R12	22K			
R13	1000Ω			
R14	680K			
R15	33K			
R16	68Ω			
R17	56K			
R18	1500Ω			
R19	56K			
R20	220Ω			
R21	220Ω			
R22	27Ω			
R23	8200Ω			
R24	120Ω			
R25	3.9meg			
R26	820K			
R27	2700Ω			
R28	68K			
R29	330Ω			
R30	27K			
R31	82K			
R32	100K			
R33	2.2meg			
R34	47Ω			
R35	33K 1W			
R36	10K 1W			
R37	1800Ω			
R38	330K			Note 1
R39	39K			Note 2
R40	82K			Note 2
R41	470K			Note 1
R42	100K			
R43	680K 1W			
R44	680Ω			
R45	390K			
R46	27K 2W			
R47	1000Ω 1W			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R48	680Ω 1W			
R49	470K			
R50	100K			
R51	220K			
R52	220K			
R53	10meg			
R54	47K			
R55	10K 1W			
R56	68K			
R57	82K			
R58	39K			
R59	180K			
R60	3.3meg			
R61	2.2meg			
R62	1000Ω			
R63	82K			
R64	390Ω			
R65	390Ω			
R66	330K			
R67	330K			
R68	330K			
R69	100K			
R70	1meg			
R71	220K			
R72	6.8meg			
R73	68K			
R74	100K			
R75	120K 2W			
R76	47K			
R77	15K			
R78	100Ω			
R79	1meg			
R80	100Ω			
R81	15K 3W	PW3-15K	3G-15K	
R82	2.2Ω			
R83	230K			
R84	4700Ω 3W	PW3-4700	3G-4700Ω	

Note 1. May not be used in some versions.
Note 2. Some versions may use single 150K for R39 & R40.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Vert. Integrator		87-8	
K2	Vert. Feedback		87-7	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1A	41.25MC Trap	S-48045	TV-132	6235	RTC-8626	T318	① Part #6-47967 (Complete Assembly)
B	1st Video IF			6235	RTC-8626	T219	② Wound on 1800Ω Resistor.
L2A	39.75MC Trap	S-41883	TV-152	6235	RTC-8556	T319	③ Part #6-52320 (Complete Assembly)
B	47.25MC Trap		TV-153	6235	RTC-8556	T219	④ Wound on 18K Resistor.
L3	2nd Video IF	S-50474	TV-130	6234	RTC-8555	T231	⑤ Part #6-51847 (Complete Assembly)
L4	3rd Video IF	S-45539	TV-130	6234	RTC-8555	T231	† Parallel with 1800Ω Resistor.
L5	4th Video IF	S-47968 ①					▲ Parallel with 18K Resistor.
L6	Peaking (90uh)	S-41879	TV-181	6177	RTC-8594	T304	
L7	RF Choke (6uh)	S-21888	BC-565	4610	RTC-8520	T859	
L8	Peaking (41uh)	S-52897 ③	TV-202 †	6136 †	RTC-8579 †	T323 †	
L9A	4.5MC Trap	S-42872 ③	TV-130	1482 IFT	RTC-9066	T253	
B	1st Sound IF						
L10	Peaking (210uh)	S-47905 ④	TV-185 ▲	6181 ▲	RTC-8598 ▲	T313 ▲	
L11	2nd Sound IF	S-51445 ⑤	TV-149				
L12	Quadrature	S-45229	TV-121	1480	RTC-8609	T251	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L13	Horiz. Osc. (Horiz. Hold)	S-45679	TV-165			HS-7			

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L14	.240A	70Ω	.8 Hy.	95-1842	C-2996 ①	C-2343	28C44	C-34X	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1.5A	540VCT ② .240A DC	5V ② 3A	95-1840	P-3885 ①	P-8356 ①	26R53 ①	R-75BA ①	① Drill new mounting hole(s).
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ② 7A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	95-1841	A-3821	A-8149	26S22 ①	A-41X	
T3	Yoke (Horiz. 14MH) (90°) (Vert. 39MH) Alt. Yoke	95-1839C		DY-39A	Y-39 ③ ③	Y-40 ② ④ & NW24	
	Rear Cover and Centering Device	95-1839 † 8-23237 or 8-43091					
T4	Horiz. Output	8-52322	HVO-176		FLY-184	D-305	

① Connect as autoformer.
② Use original width sleeve.
† Includes rear cover and centering device.
③ Cut and tape orange lead.
④ Connect yoke terminal #3 to horizontal output terminal #3; yoke terminal #4 to horizontal output terminal #2.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	5400Ω	3-4Ω	95-1655	A-3026 ①	A-3877 ①	24S48 ①	S-6Z	① Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: ZENITH PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	49-887	4A07	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	5A 125V SLO BLO	138-45		313005 (3AG 5A 125V SLO BLO)	357001	MDX5	4405
M2	N	7/10A 250V SLO BLO	136-38		333.700 (N 7/10A 250V SLO BLO)	346010	N 7/10	HN 1/2 to 3/4
M3	1" length of #24 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: ZENITH PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M4		103-20 *	8GC1 *	1N87 †	* Dual Selenium Diode, Common Cathode Type
M5		103-23 †			† Crystal Diode, Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M6	Tuner	175-176	VHF, Used in Models G1210E, M, R, W. STANDARD COIL REPLACEMENT #GG4230A *
		175-302 or 175-142	VHF, Used in Model G1213C.
		175-202	VHF, Used in Models G1201C, F, G1202L, R, & W
		175-175	VHF with UHF Provisions, Model G1200EU, MU, RU, & WU.
		175-201	VHF with UHF Provisions, Model G1201CU, FU, G1203LU, RU & G1202WU
		175-8	UHF

* Use original shafts

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. [illegible]
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

VHF TUNER PARTS LIST AND DESCRIPTIONS

175—176

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V201	RF Amplifier	6FH5 (6FQ5) *
V202	Mixer - Osc.	6CG8A

* Alternate

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201A	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
B	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202A	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
B	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	30 7½%	#22-3111						
C204	27 N750 5%			TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	.001		EF-001	MFT-1000		CCF-102	CT280A	
C206	1.8-7	#22-3191		829-7				
C207	100 5%		EF-0001	MFT-100				
C208	.5-3			829-3		CV-1	CT565	
C209	33		NPO-SI 33	TCZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C210	.5-3			829-3		CV-1	CT565	
C211	40	#22-3112						
C212	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C213	7.25 N80 +.5mmf -.25mmf	#22-3460				*		
C214	18 N220 10%	#22-3025				*		10TCR-Q18
C215	.001		EF-001	MFT-1000		CCF-102	CT280A	
C216	.001		EF-001	MFT-1000		CCF-102	CT280A	

\# Zenith Part Number

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47K			
R202	1200Ω			
R203	2200Ω			
R204	220K			
R205	4700Ω			
R206	4700Ω			
R207	4700Ω 7W	PW7-4700	7G-4700	(5200Ω) *

* Alternate

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	Ant. Ass'y	S-51973	
L202A	Ant., RF, Mixer & Osc.	174-22	Channel 2
B	"	174-23	Channel 3
C	"	174-24	Channel 4
D	"	174-25	Channel 5
E	"	174-26	Channel 6
F	"	174-27	Channel 7
G	"	174-28	Channel 8
L202H	Ant. RF, Mixer & Osc.	174-29	Channel 9
J	"	174-30	Channel 10
K	"	174-31	Channel 11
L	"	174-32	Channel 12
M	"	174-33	Channel 13
L203	Fine Tuning	S-47481	
L204	RF Choke	20-758	
L205	Mixer Plate	S-47370	

CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	G2101C	G2101CU	G2101F	G2101FU	G2102L	G2102LU	G2102R	G2102RU	G2102W	G2102WU	G2120E	G2120EU	G2120M	G2120MU	G2120R	G2120RU	G2120W	G2120WU	G2213G
Safety Glass	192-293	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-VHF Channel Selector	46-2183	X	X																	
Knob- "	46-2735			X	X															
Knob- "	46-2723					X	X	X	X	X	X									
Knob- "	46-2510											X	X	X	X	X	X	X	X	
Knob-UHF Channel Selector	S-47079		X		X		X		X		X		X		X		X		X	
Knob-UHF Channel Indicator	S-43927		X		X		X		X		X		X		X		X		X	
Knob-VHF Fine Tuning	S-52253	X	X	X	X															
Knob- "	S-52264					X	X	X	X	X	X									
Knob- "	S-49930											X	X	X	X	X	X	X	X	
Knob- "	S-50096																			X
Knob-Volume	S-45716	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob- Vertical Hold, Brightness, Contrast	S-51171	X	X																	
Knob- "	S-49990			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Horizontal Hold	S-46215	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

CABINETS

MODEL NO.	PART NO.
G2101C	14-3620
G2101CU	14-3621
G2101F	14-3622
G2101FU	14-3623
G2102L	14-3618
G2102LU	14-3619
G2102R	14-3616
G2102RU	14-3617
G2102W	14-3610
G2102WU	14-3611
G2120E	14-3659
G2120EU	14-3660
G2120M	14-3667
G2120MU	14-3662
G2120R	14-3657
G2120RU	14-3658
G2120W	14-3655
G2120WU	14-3656
G2213G	14-3624

VHF TUNER ALIGNMENT INSTRUCTIONS

175-142, -302

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202, A203 .... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A204 thru A215 .... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	213MC	211.25MC 215.75MC	13		A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
		207MC	205.25MC 209.75MC	12		A205	
		201MC	199.25MC 203.75MC	11		A206	
		195MC	193.25MC 197.75MC	10		A207	
		189MC	187.25MC 191.75MC	9		A208	
		183MC	181.25MC 185.75MC	8		A209	
		177MC	175.25MC 179.75MC	7		A210	
		85MC	83.25MC 87.75MC	6		A211	
		79MC	77.25MC 81.75MC	5		A212	
		69MC	67.25MC 71.75MC	4		A213	
		63MC	61.25MC 65.75MC	3		A214	
		57MC	55.25MC 59.75MC	2		A215	

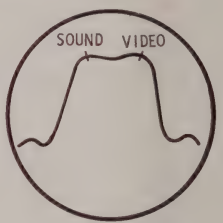
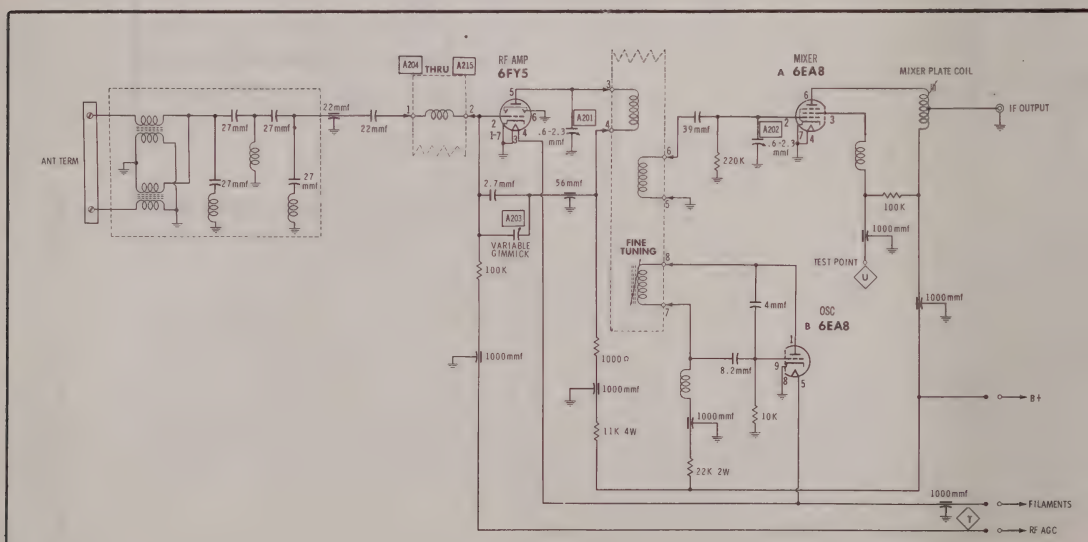


FIG. 201

VHF OSCILLATOR ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 175-142, -302

VHF TUNER ALIGNMENT INSTRUCTIONS

175-201, -202

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

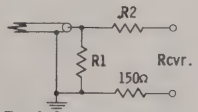
VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range by turning the Fine Tuning shaft until the small index hole in the drive cam is directly over the small hole just below the channel 13 oscillator adjustment screw. Starting with the highest channel operating in the area, adjust the appropriate oscillator adjustment screw for best picture and sound for each channel available.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2 volt bias supply to point ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usuable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. amp. thru 10K to point ⓣ. Low side to chassis.	A201	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown.
2.	"	"	207MC	205.25MC 209.75MC	12	"	A202	"
3.	"	"	201MC	199.25MC 203.75MC	11	"	A203	"
4.	"	"	195MC	193.25MC 197.75MC	10	"	A204	"
5.	"	"	189MC	187.25MC 191.75MC	9	"	A205	"
6.	"	"	183MC	181.25MC 185.75MC	8	"	A206	"
7.	"	"	177MC	175.25MC 179.75MC	7	"	A207	"
8.	"	"	85MC	83.25MC 87.75MC	6	"	A208, A209	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust first coil for proper marker position and second coil for maximum gain and symmetry.
9.	"	"	79MC	77.25MC 81.75MC	5	"	A210, A211	"
10.	"	"	69MC	67.25MC 71.75MC	4	"	A212, A213	"
11.	"	"	63MC	61.25MC 65.75MC	3	"	A214, A215	"
12.	"	"	57MC	55.25MC 59.75MC	2	"	A216, A217	"



Zo = Impedance of Cable

Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG. 201

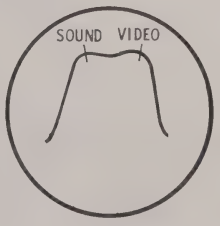
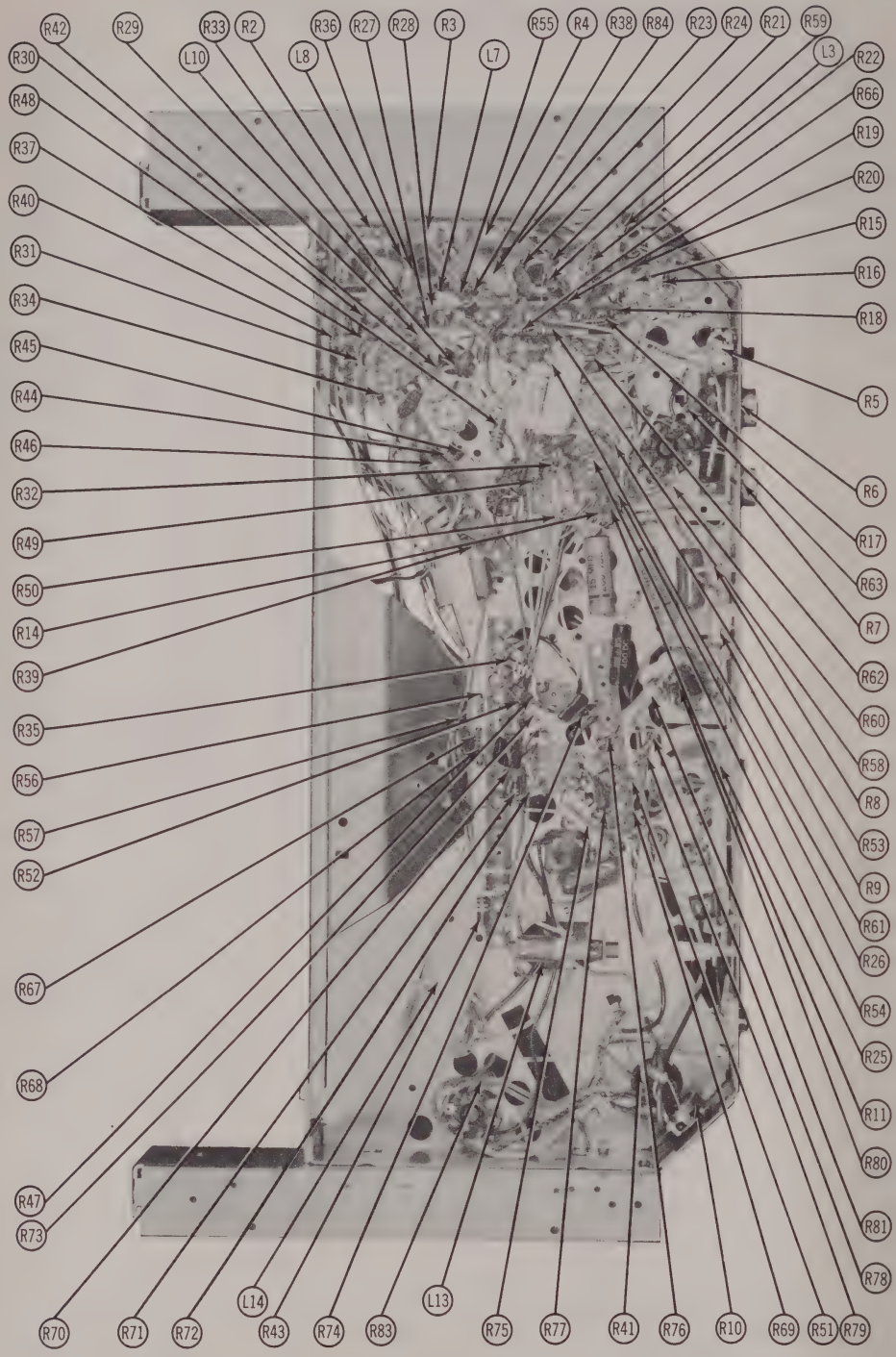
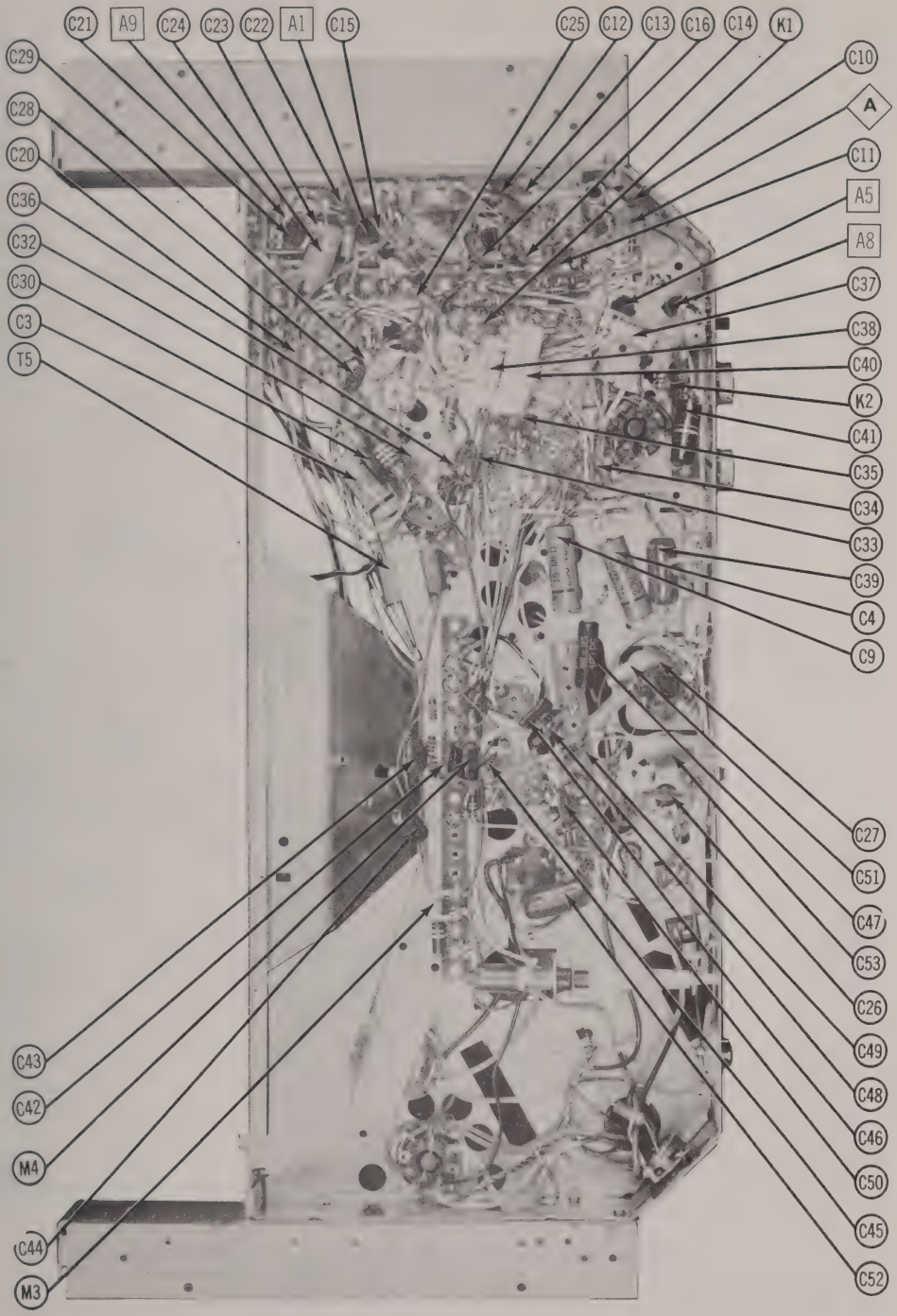


FIG. 202

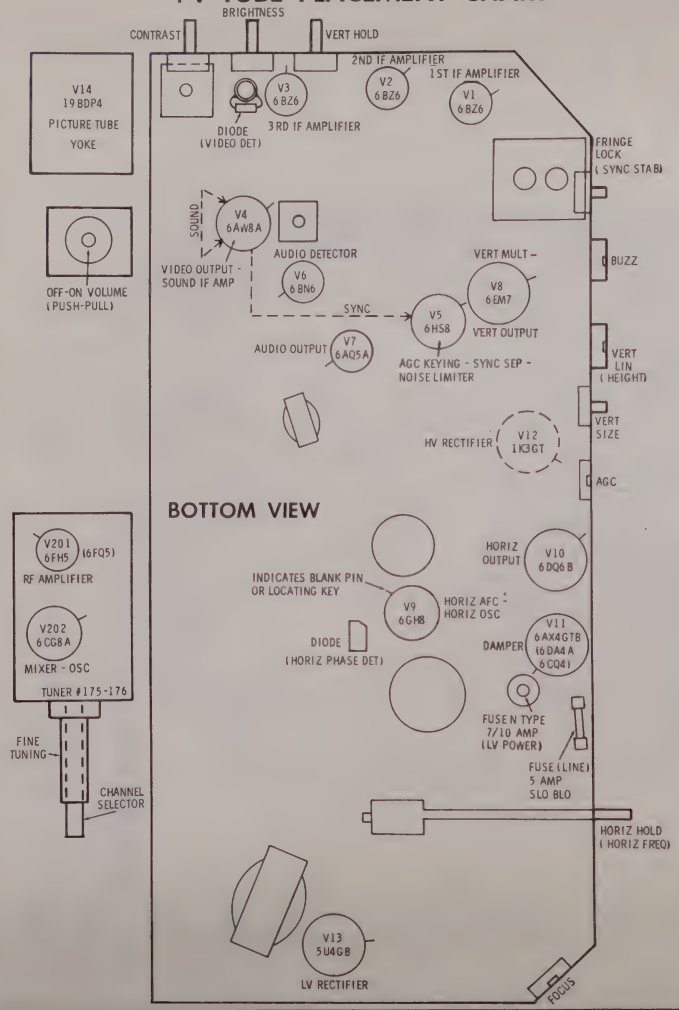


TV CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.



TV CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC. IDENT.

TV TUBE PLACEMENT CHART

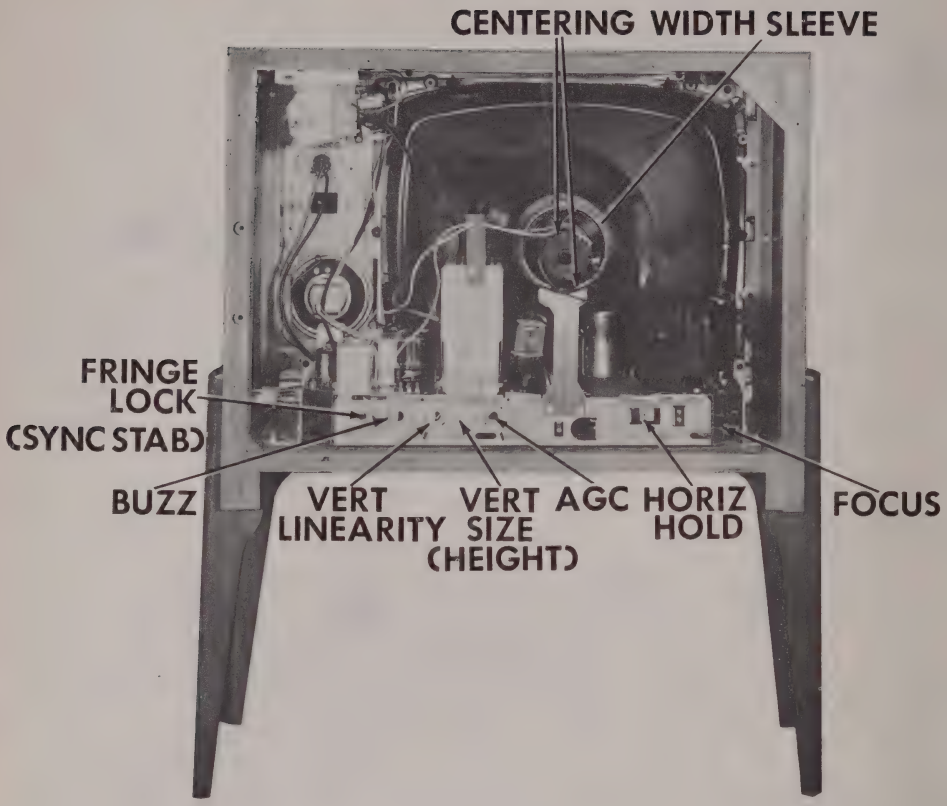


TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.5meg	1600Ω	FIL	FIL	▪220Ω	▪220Ω	1500Ω		
V2	6BZ6	40K	INF	FIL	FIL	†290Ω	†290Ω	▪ 27Ω		
V3	6BZ6	.1Ω	120Ω	FIL	FIL	†4700Ω	†4700Ω	0Ω		
V4	6AW8A	0Ω	100K	†680K	FIL	FIL	47Ω	3000Ω	†33K	†9000Ω
V5	6HS8	0Ω	†15K	800K	FIL	FIL	• 1meg	•†1.8meg	†40K	†10meg
V6	6BN6	• 400Ω	.1Ω	FIL	FIL	†27K	3.8Ω	†390K		
V7	6AQ5A	NC	680Ω	FIL	FIL	†1700Ω	†1000Ω	• 0Ω		
V8	6EM7	2.2meg	†590Ω	• 1200Ω	• 400K	•†6.5meg	0Ω	FIL	FIL	
V9	6GH8	†68K	100K	†47K	FIL	FIL	† 120K	27Ω	0Ω	1.4meg
V10	6DQ6B	NC	FIL	NC	†15K	750K	TP	FIL	0Ω	TOP CAP † 11Ω
V11	6AX4GTB	TP	TP	2.8meg	NC	†70Ω	TP	FIL	FIL	
V12	1K3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP † 220Ω
V13	5U4GB	NC	¶ 50K	TP	31Ω	NC	28Ω	TP	¶ 50K	
V14	19BDP4	FIL	0Ω	Pin 6 •†1.5meg	Pin 10 †70K	Pin 11 • 140K	Pin 12 FIL			
V201	6FH5	0Ω	3meg	FIL	FIL	†5900Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†9400Ω	0Ω	FIL	FIL	†4700Ω	†4700Ω	0Ω	222K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 2 OF V13.
† MEASURED FROM PIN 3 OF V11.
▪ MEASURED FROM PIN 2 OF V2.

NC NO CONNECTION
TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

The Horizontal Hold is equipped with a stop which limits rotation to approximately 270° with the knob on the shaft. To adjust, remove the knob and adjust by turning the shaft until the picture is synchronized to the point where it is virtually impossible to disrupt horizontal synchronization when switching from channel to channel. Install the knob with its pointer centered between the stops.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE ASSEMBLY REMOVAL

1. Remove 8 wood screws holding rear cover.
2. Disconnect antenna leads and remove 3 knobs at side of cabinet.
3. Remove rear cover.
4. Remove 4 chassis bolts.
5. Remove 5 screws holding cabinet front panel to cabinet.
6. Disconnect all leads from tuner.
7. Slide chassis and picture tube out front.
8. To remove tuner, remove 2 screws holding tuner mounting bracket to cabinet.

PICTURE TUBE REMOVAL

1. Remove rear cover.
2. Remove picture tube socket, hi voltage lead, speaker leads, and pilot lamp lead.
3. Lower tuner bracket down by removing 2 screws.
4. Remove 5 screws in front panel (inside cabinet) and pull panel and picture tube assembly out front.

PHOTOFACT® Folder

**AIRLINE MODELS
GEN-1206A, GEN-1207A**

AIRLINE MODELS
GEN-1206A, GEN-1207A

MODEL GEN-1207A

AIRLINE MODELS
GEN-1206A, GEN-1207A

TRADE NAME	Airline Models GEN-1206A, GEN-1207A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	6 Volts DC
RATING	9MA@ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1640KC
	15MA@ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3.. GENERAL CEMENT #5097, 8727
WALSCO #2515
A4, A6.... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5.... ... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to Base of Converter transistor. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1640KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	535KC	Tuning gang fully closed.	"	A5	"
4.	"	1400KC	1400KC Signal	"	A6	"
5.	"	600KC	600KC Signal.	"	A7	Adjust by moving adjustable windings along ferrite core.

SET 547 FOLDER 3

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KF 699

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	1526	Converter				PNP
	2N1526*	Converter				PNP
X2	1524	1st IF Amplifier				PNP
	2N1524*	1st IF Amplifier				PNP
X3	1524	2nd IF Amplifier				PNP
	2N1524*	2nd IF Amplifier				PNP
X4	2N406	Driver	2N406	2N362	2N406	PNP
X5	2N408	Output	2N270	2N633	2N408	PNP \ Matched
X6	2N408	Output	2N270	2N633	2N408	PNP / Pair

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	E3238	PTT39	NLW10-15	TT12X10	MLV10-10	TE-1114	
C2	10	10	E3238	PTT39	NLW10-15	TT12X10	MLV10-10	TE-1114	
C3	100	10	E3215	PTT46	NLW100-12	TT15X100	MLV100-10	TE-1119. 3	
C4	100	10	E3215	PTT46	NLW100-12	TT15X100	MLV100-10	TE-1119. 3	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C6	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.05		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C9	.05		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C10	.05		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C11	.05		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C12	.05		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C13	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C14	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5000Ω	½	E2553	B-11	A47-5000-S	Q13-114	U12	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	15K			Note 1
R3	3900Ω			
R4	1800Ω			
R5	2700Ω			
R6	100K			
R7	330Ω			
R8	2200Ω			

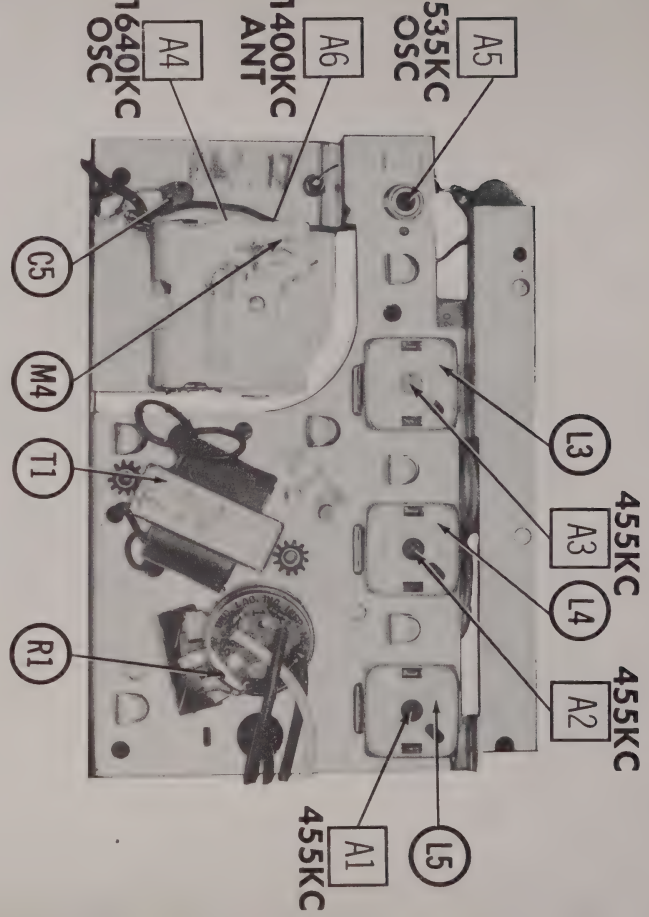
ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R9	470Ω			
R10	39K			
R11	270Ω			
R12	8200Ω			
R13	1Ω 1W			
R14	1Ω 1W			

Note 1. Not used in Model GEN-1206A

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA
K1	Driver Bias	100Ω, 470Ω, 5600Ω, 27K	E3032A	
K2	Output Bias	(2) 82Ω, (2) 1500Ω	E3033A	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	E6043B					① Includes R4 & C7
L2	Osc.	E6140A ①					
L3	1st IF	E6257A					
L4	2nd IF	E6256A					
L5	3rd IF	E6259A					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA				NOTES
	PRI.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.6	1	E1131 ①					① Alternate Part #E1131B
		SEC. 2						
		1						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"	PM	14-16Ω	E1053B	4A1Z16	

BATTERIES

ITEM No.	VOLTAGE	AIRLINE PART No.	REPLACEMENT DATA					NOTES
			BURGESS		EVEREADY		MALLORY	
			"A"	"B"	"A"	"B"	"A" "B"	
M1	1.5V	02-56 *	130 *		635 *		M-14R*	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	AIRLINE PART No.	REPLACEMENT DATA			NOTES
			GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	RCA3458	E2412				Overload (Model GEN-1207A only) Detector
M3	RCA3458	E2412				

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4	Tuning Cap.	E3529	2 Gang

CABINETS & CABINET PARTS

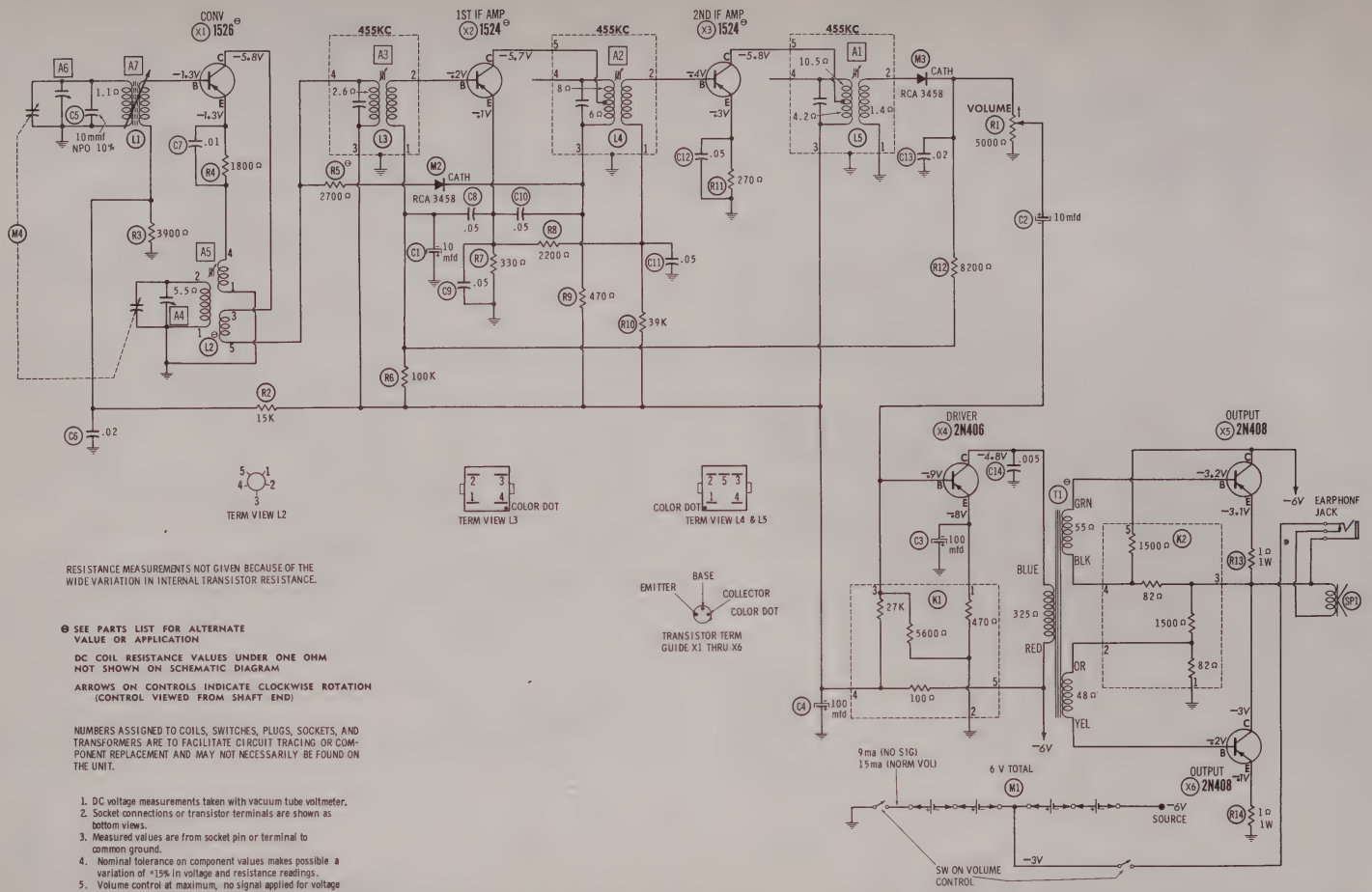
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	E50138B	Dial, Model GEN-1207A
Knob	E50122B	Dial, Model GEN-1206A
Knob	E50141A	Volume, Model GEN-1207A
Knob	E50140A	Volume, Model GEN-1206A
Knob	E50113B	Tuning, Model GEN-1207A
Knob	E50114B	Tuning, Model GEN-1206A
Cabinet	E70006D	Model GEN-1207A
Cabinet	E7094	Model GEN-1206A

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—BOTTOM VIEW



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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AIRLINE MODELS
GEN-1206A, GEN-1207A

PHOTOFACT® Folder with CIRCUITRACE™

CROWN MODEL TRP-15

CROWN MODEL TRP-15

CROWN MODEL TRP-15

TRADE NAME	Crown Model TRP-15
IMPORTER	Shriro, Inc., 276 Fourth Ave., New York 10, N. Y.
TYPE SET	Battery Operated Transistorized AM Receiver With 3 Speed Manual Record Player
POWER SUPPLY	9 Volts DC RATING 9MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 — 1605KC 20MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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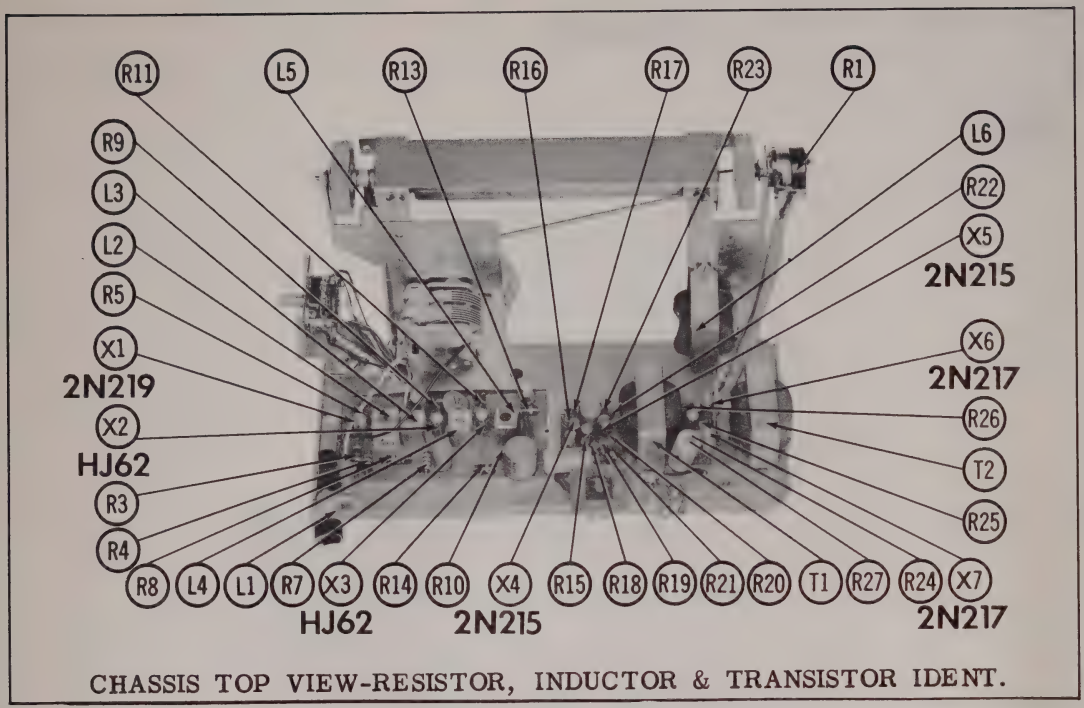
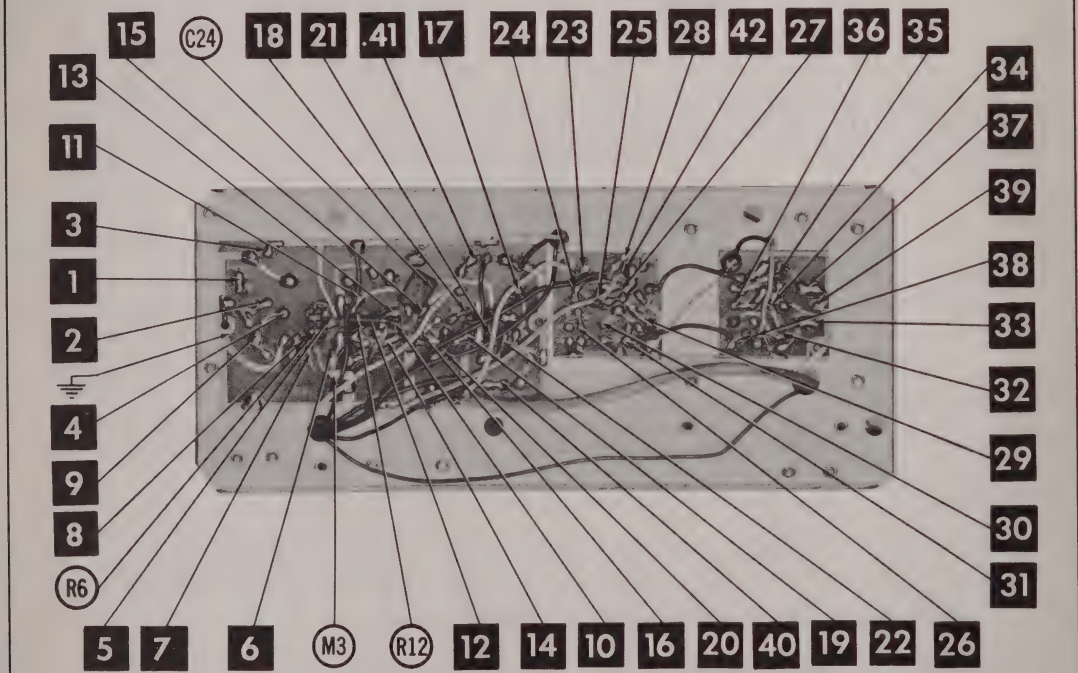
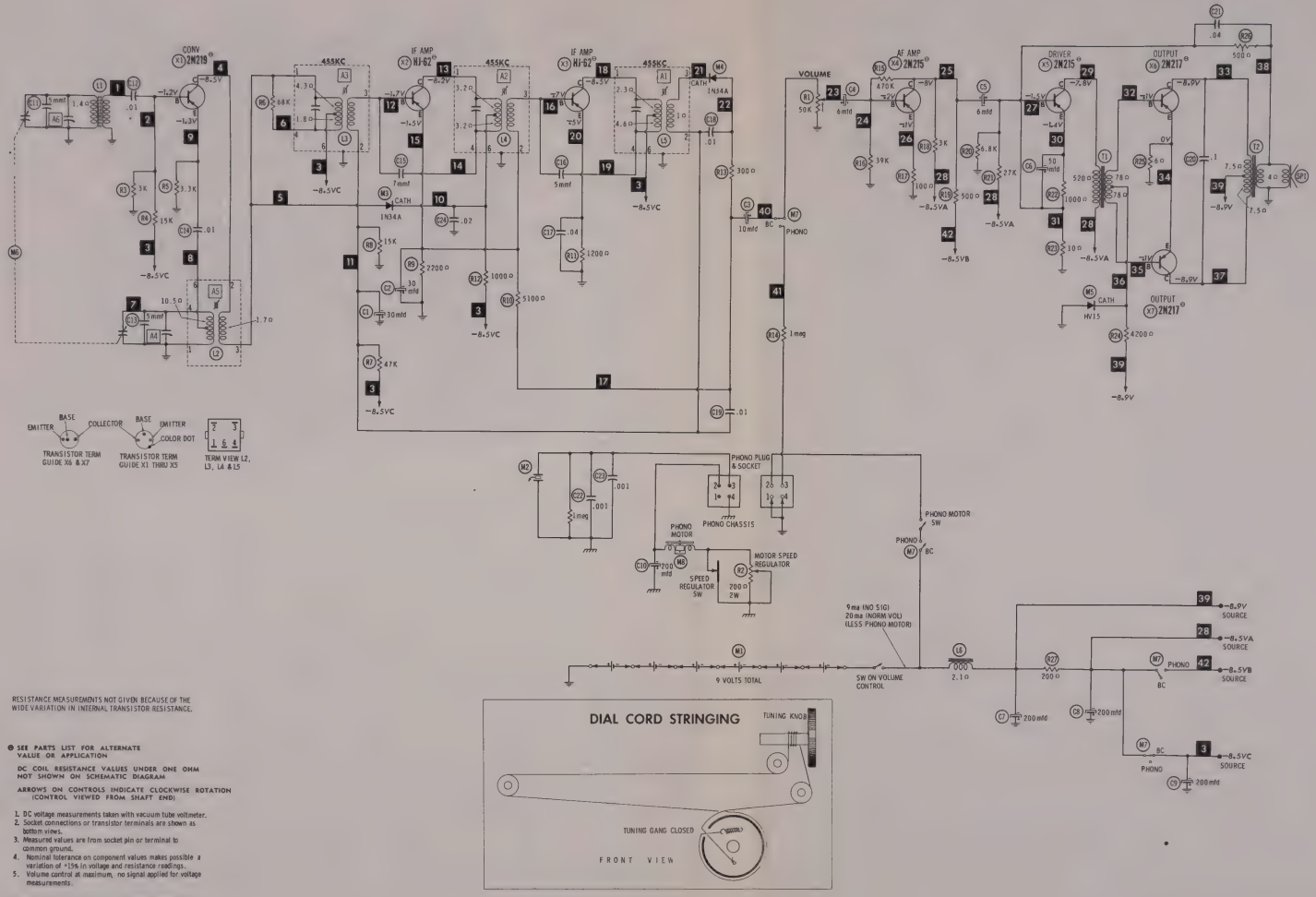


CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TRANSISTOR IDENT.



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊛ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

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CROWN MODEL TRP-15

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219	Converter	2N219	2N486	2N219	PNP
	2SA15*	Converter				PNP
X2	HJ-62	1st IF Amplifier	2N406	2N483		PNP
	2SA14*	1st IF Amplifier				PNP
X3	HJ-62	2nd IF Amplifier	2N406	2N483		PNP
	2SA14*	2nd IF Amplifier				PNP
X4	2N215	AF Amplifier	2N407	2N362	2N104	PNP
	2SB75*	AF Amplifier	2N406			PNP
X5	2N215	Driver	2N407	2N362	2N104	PNP
	2SB75*	Driver	2N406			PNP
X6	2N217	Output	2N407	2N361	2N217	PNP
	2SB77*	Output	2N408			PNP
X7	2N217	Output	2N407	2N361	2N217	PNP
	2SB77*	Output	2N408			PNP

* Alternate Type.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	CROWN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	30	6		BCD6035	ECPB412	TT6X30	MLV30-6	VL-1092	
C2	30	6		BCD6035	ECPB412	TT6X30	MLV30-6	VL-1092	
C3	10	6		BCD6010	ECPB408	PET1340	MLV10-6	VL-1087	
C4	6	6		BCD6006	ECPB406	PET1535	MLV5-6	VL-1085	
C5	6	6		BCD6006	ECPB406	PET1535	MLV5-6	VL-1085	
C6	50	6		BCD6050	ECPB115	PET1575	MLV50-6	VL-1094	
C7	200	10		BCD20200	NLW200-12	TC1502	MLV200-10	TE-1119.6	
C8	200	10		BCD20200	NLW200-12	TC1502	MLV200-10	TE-1119.6	
C9	200	10		BCD20200	ECPB121	TC1502	MLV 200-10	TE-1119.6	
C10	200	10		BCD20200	NLW200-12	TC1502	MLV200-10	TE-1119.6	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C12	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C13	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C14	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	7		NPO-DI 6.8	DTZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C16	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C17	.04							
C18	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C19	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C20	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P1

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	.04							
C22	.001		C80V102AM	DM-102	H-05D1	CCD-102	B-210	5HK-D10
C23	.001		C80V102AM	DM-102	H-05D1	CCD-102	B-210	5HK-D10
C24	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CROWN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B R2	50K Switch 200Ω	1/4 2(WW)						Volume Power Off-On Motor Speed Regulator

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	3000Ω				R16	39K			
R4	15K				R17	100Ω			
R5	3300Ω				R18	3000Ω			
R6	68K				R19	500Ω			
R7	47K				R20	6800Ω			
R8	15K				R21	27K			
R9	2200Ω				R22	1000Ω			
R10	5100Ω				R23	10Ω			
R11	1200Ω				R24	4200Ω			
R12	1000Ω				R25	6Ω			
R13	300Ω				R26	500Ω			
R14	1meg				R27	200Ω			
R15	470K								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		CROWN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Oscillator						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6	.020A	2.1Ω	48MH						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.4	1	TRT-18					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	800Ω CT	3-4Ω	TRT-19					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CROWN PART No.	QUAM PART No.	
SP1	4"x 6"	PM	3-4Ω		46A1	

BATTERIES

ITEM No.	VOLTAGE	CROWN PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-6		230		A100		M13R	6 Required

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	CROWN PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	C20	L20 *	74TS K74-T ①	N8-7 *	96T	Not Req.	12TH-S T8C1-12TH-S ①	Not Req.	① Includes Tone Arm
		S20 *		N8-3 *					

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		CROWN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	1N34A			1N34A	1N34A	Overload (Pigtail)
M4	1N34A			1N34A	1N34A	Detector (Pigtail)
M5	HV15					Output Bias Regulation

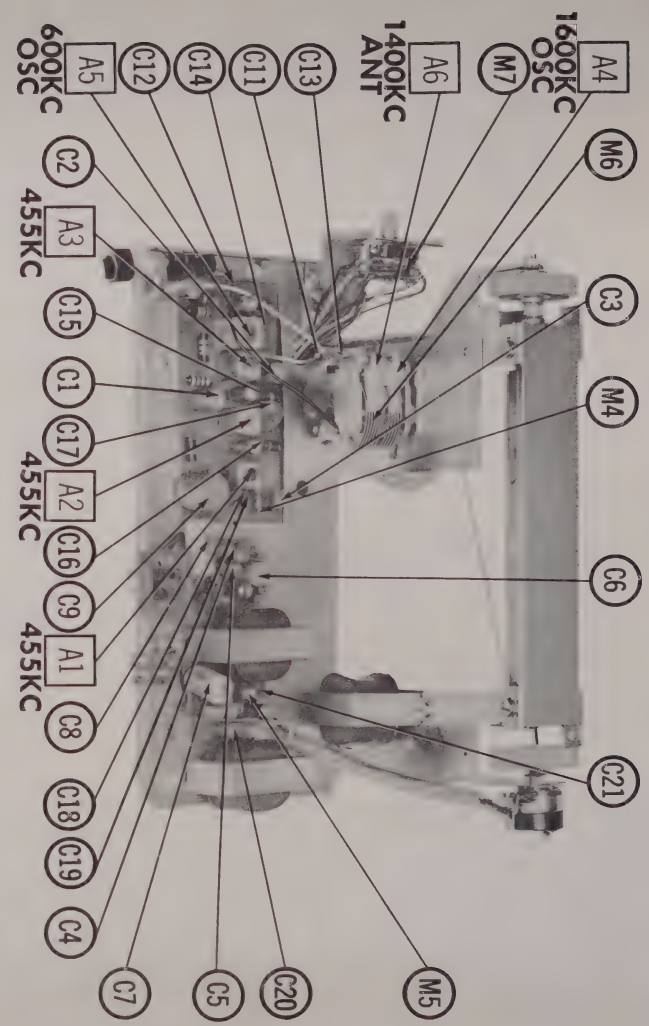
MISCELLANEOUS

ITEM No.	PART NAME	CROWN PART No.	NOTES
M6	Tuning Cap.		2 Gang
M7	Switch		Function Selector
M8	Motor		Phono Drive (DC)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW



PHOTOFACT® Folder

FANON MODEL 3310

FANON MODEL 3310

FANON MODEL 3310

TRADE NAME	Fanon Model 3310
MANUFACTURER	Fanon Electronic Sales Corp., 919 Park Place, Brooklyn 13, N. Y.
TYPE SET	AC Operated 3 Tube Audio Amplifier (A 4 Speed Manual Record Player Cabinet top, Model 3600, is available)
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 70 Watts, .66 Amp.@ 117 Volts AC

SET 547 FOLDER 5

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KX707

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Mic Preamp. -AF Amp.	12AX7
V2	Output	6L6GC
V3	Rectifier	EZ80/6V4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FANON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	500	174-04		C0400	FP399.5	TMT-3865	TVL-3962	
B	■10	450			BR505	TC39	TD-50-50	TVA-1308	
C	▲10	350							
D	50	50							
C2	40	10	170-03	PTT44	NLW40-10	TT15X40	MLV40-12	TE-1119	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C4	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C5	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C6	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA FANON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	203-70	B-70	A47-1meg-Z	Q13-137	U53	Mic 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	2meg 1meg Tap	½	203-93	BT-78	A47F3-2meg	Q18-139X		Phono-Radio
B	Shaft			Not Req.	KSS-3	Not Req.		
R3A	2meg	½	200-92	B-76	A47-2meg-Z	Q13-139	U55	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On

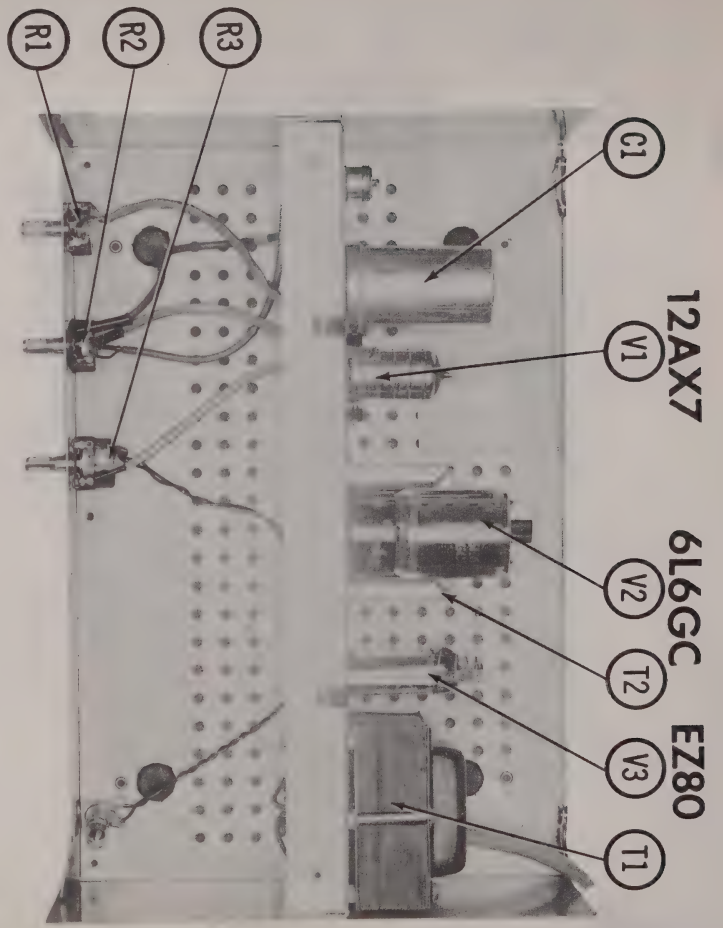
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	2.2meg 1W			
R5	470K			
R6	220K			
R7	220K			
R8	470K			
R9	3300Ω			
R10	100Ω			
R11	15K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	2.2meg			
R13	150K			
R14	220K			
R15	330Ω 5W	PW5-330	5W-SQ-330	
R16	47K			
R17	15K 1W			
R18	150Ω 2W			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	FANON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .66A	800VCT @ .080A DC	6.3VCT @ 2.1A	251-05					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FANON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4800Ω	70V Tap @ 16Ω, 8Ω, 4Ω	252-13					

FUSES

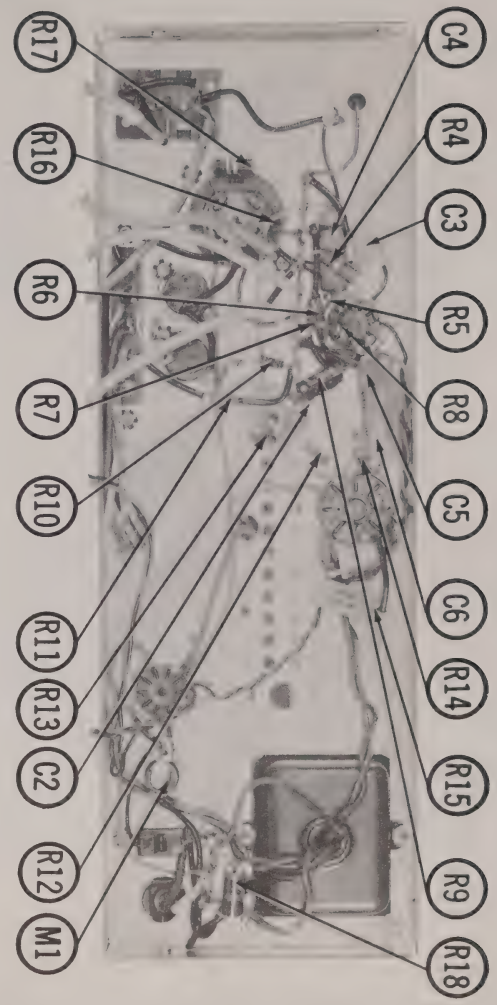
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FANON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 125V S/B			313003 (3AG 3A 125V)	342001	MDX3	HKP

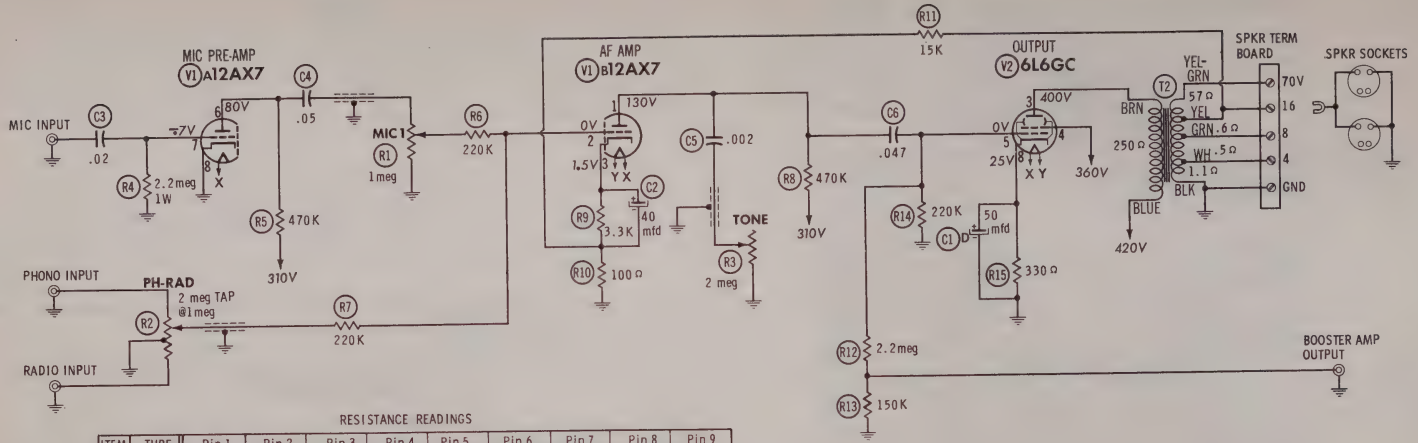
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW

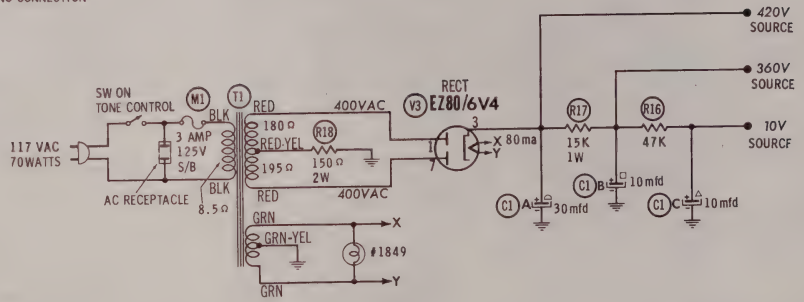




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†530K	110K	3400Ω	FIL	FIL	†530K	2.2meg	0Ω	FIL
V2	6L6GC	NC	FIL	†250Ω	†15K	220K	NC	FIL	330Ω	
V3	EZ80 6V4	330Ω	NC	¶ INF	FIL	FIL	NC	345Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V3. NC NO CONNECTION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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FANON MODEL 3310

PHOTOFACT® Folder

HEATH MODELS
EA-3, W-EA-3

HEATH MODELS
EA-3, W-EA-3

HEATH MODELS
EA-3, W-EA-3

TRADE NAME	Heath Models EA-3 (Kit), W-EA-3 (Wired)
MANUFACTURER	Heath Co., A Subsidiary of Daystrom, Inc., Benton Harbor, Michigan
TYPE SET	AC Operated 6 Tube Audio Amplifier
POWER SUPPLY	105 — 125 Volts AC, 50-60 Cycles RATING 70 Watts, .7 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KX661

SET 547 FOLDER 6

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	Preamp. - AF Amp.	ECC83/12AX7
V2	AF Amplifier	EF94/6AU6
V3	AF Amp.-Phase Inv.	6AN8
V4	Output	EL84/6BQ5
V5	Output	EL84/6BQ5
V6	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA HEATH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	450	25-63		C0270	FP376.5	TMQ-4616	TVL-3780	
B	■20	400			BR3045	TC77		TVA-1711	
C	▲20	350							
D	20	300							
C2	10	25	25-4	PRS1250	BBR10-25	TC22	TD-10-25	TVA-1204	
C3	10	25	25-4	PRS1250	BBR10-25	TC22	TD-10-25	TVA-1204	
C4	50	25	25-85	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	

FIXED CAPACITORS

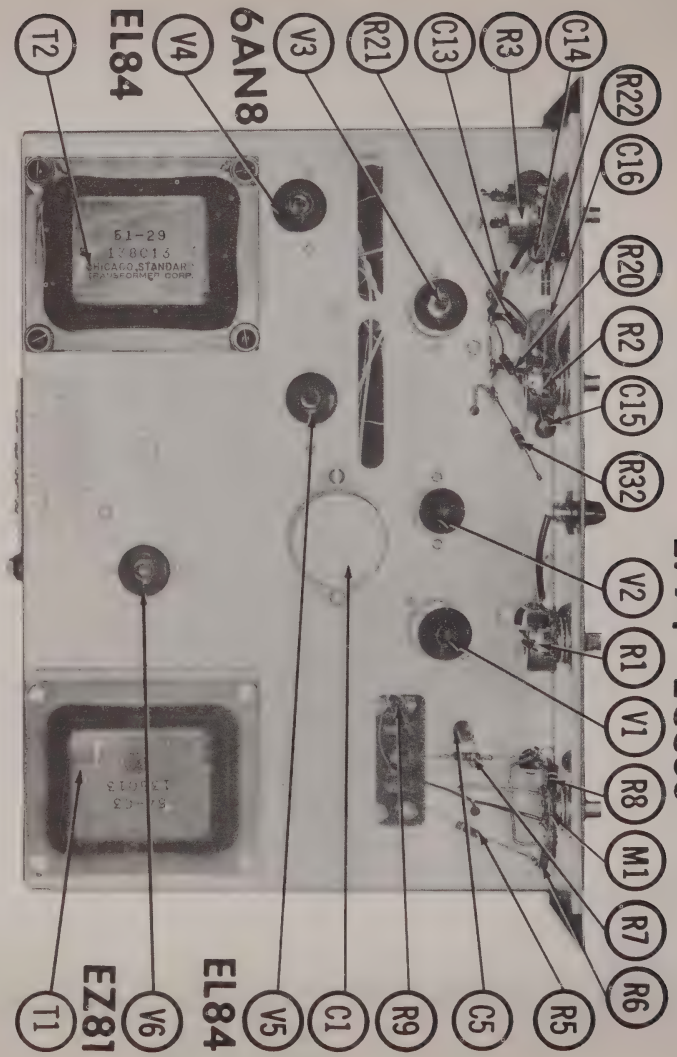
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 NPO 10%		NPO-DI 10	DTZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10
C6	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C7	3500 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C8	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C9	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C10	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C11	3500 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C12	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C13	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C14	.002 600V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C15	.002 600V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C16	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C17	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C18	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C19	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C20	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C21	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA HEATH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	10-64	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1meg	½	10-64	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	19-37	B-70-S	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R4A	100Ω	2(WW)	11-17	WN-101	A43-100	W11-084	C100P	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	470K			
R6	33K			
R7	2.2meg			
R8	220K			
R9	47K			
R10	100K			
R11	2700Ω			
R12	22K			
R13	470K			
R14	1meg			
R15	100K			
R16	1200Ω			
R17	100K			
R18	120K			
R19	3300Ω			
R20	100K			
R21	10K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R22	100K			
R23	220K			
R24	680K			
R25	1000Ω			
R26	27K			
R27	47K 1W			
R28	47K 1W			
R29	470K			
R30	210Ω 7W	PW10-210	10W-SQ-210	
R31	470K			
R32	100K			
R33	22K			
R34	22K			
R35	6800Ω			
R36	110Ω 5W	PW5-110	5W-SQ-110	
R37	2700Ω			

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	PRI.	SEC. 1	SEC. 2	HEATH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.		
T1	117V @ .7A	640VCT @ .080A DC	6.3V @ 3.5A	54-63						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HEATH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	10K CT Tap @ 2600Ω CT	16Ω Tap @ 8Ω, 4Ω	51-29					

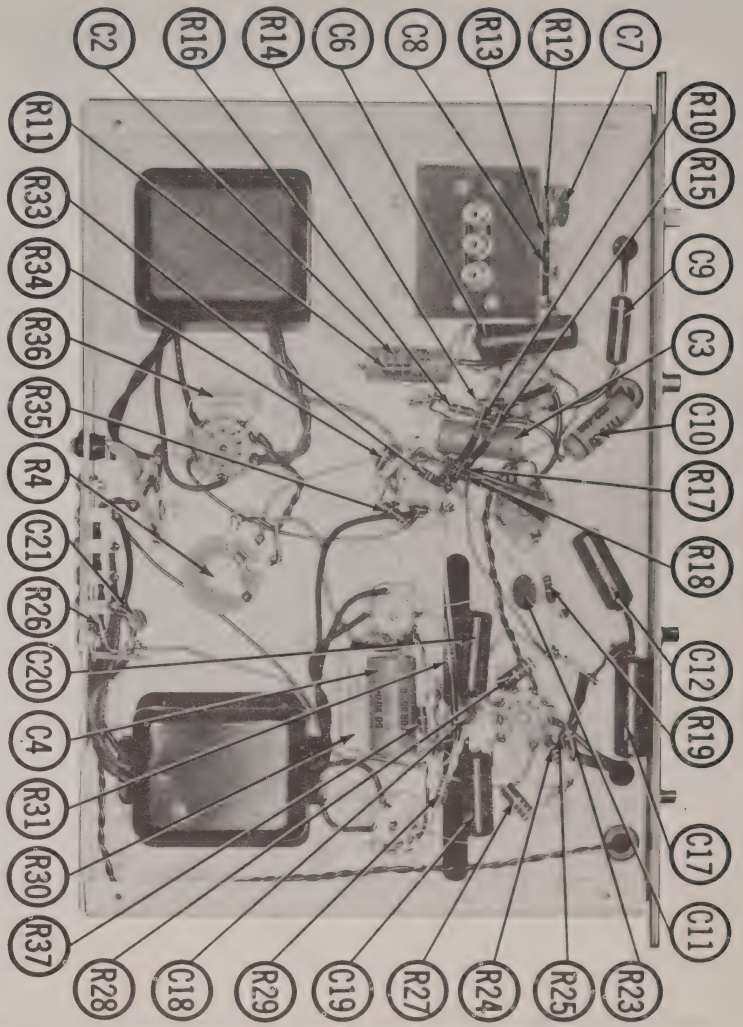
MISCELLANEOUS

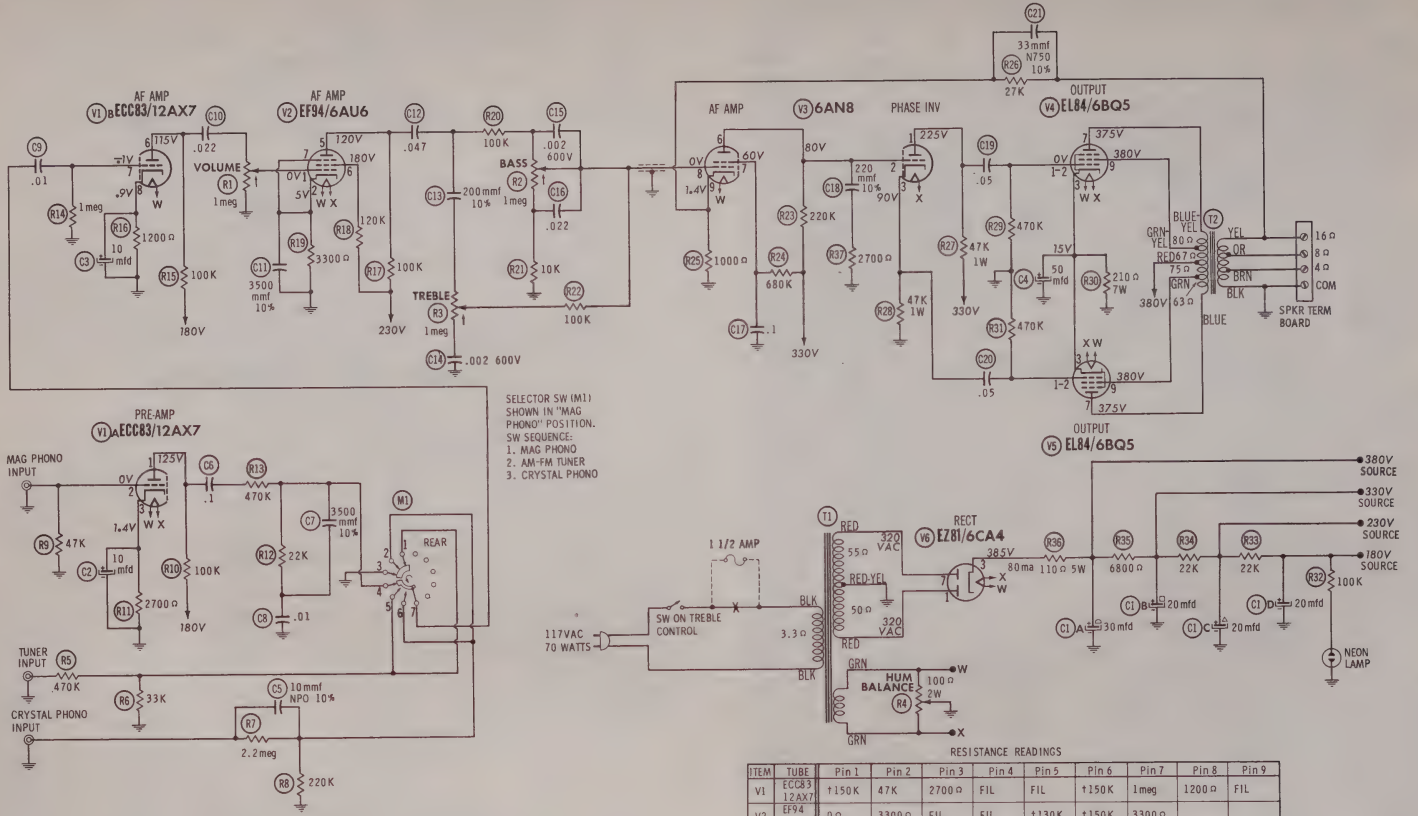
ITEM No.	PART NAME	HEATH PART No.	NOTES
M1	Switch	63-144	Function Selector (Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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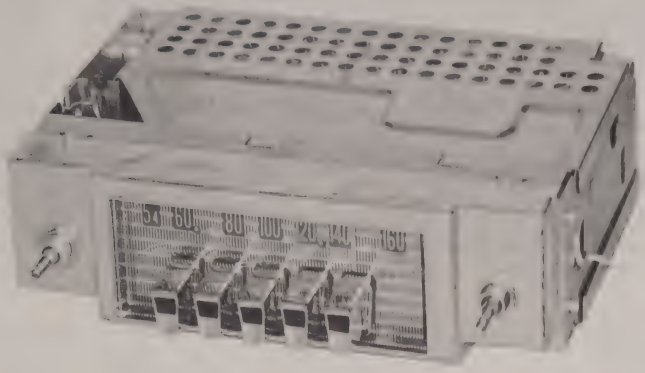
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†150K	47K	2700Ω	FIL	FIL	†150K	1meg	1200Ω	FIL
V2	EF94 6AU6	0Ω	3300Ω	FIL	FIL	†130K	†150K	3300Ω		
V3	6AN8	†54K	†227K	47K	FIL	FIL	†227K	†680K	10K	1000Ω
V4	EL84 6BQ5	NC	470K	210Ω	FIL	FIL	NC	260Ω	NC	†180Ω
V5	EL84 6BQ5	NC	470K	210Ω	FIL	FIL	NC	†250Ω	NC	†185Ω
V6	EZ81 6CA4	50Ω	NC	¶ INF	FIL	FIL	NC	55Ω	NC	TP

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6. NC NO CONNECTION TP TIE POINT

HEATH MODELS EA-3, W-EA-3



MOPAR MODEL
317

TRADE NAME	Mopar Model 317 (13BC) For 1961 Chrysler
MANUFACTURER	The Bendix Corp., Bendix Radio Div., Baltimore 4, Maryland
TYPE SET	Battery Operated 3 Tube-3 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING .8 Amp. @12.6 Volts DC
TUNING RANGE—BROADCAST	530 – 1605KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 9 (grid) of Converter. Low side to chassis.	262.5KC (400% Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	To antenna terminal thru dummy (Fig. 1).	1605KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or components replaced. If necessary, back tuning cores (A8, A9, and A10) out of coils. Repeat Step 2.					
3.	To antenna terminal thru dummy (Fig. 1).	1000KC	Tuner carriage ½" from high end stop.	Across voice coil.	A8, A9, A10	Adjust for maximum output. Repeat Steps 2 and 3.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1600KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull Pushbutton out.
2. Tune manually to desired station.
3. Press Pushbutton in firmly.
4. Repeat for remaining Pushbuttons.

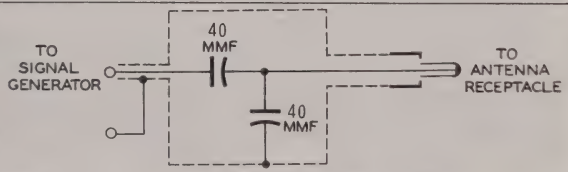


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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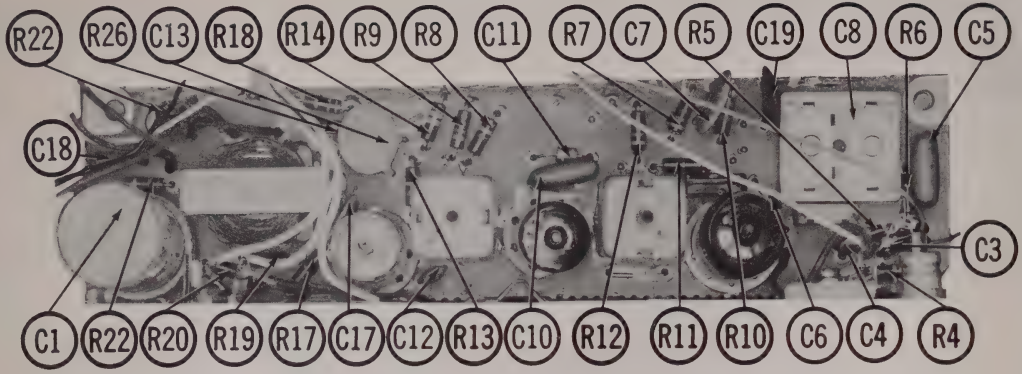
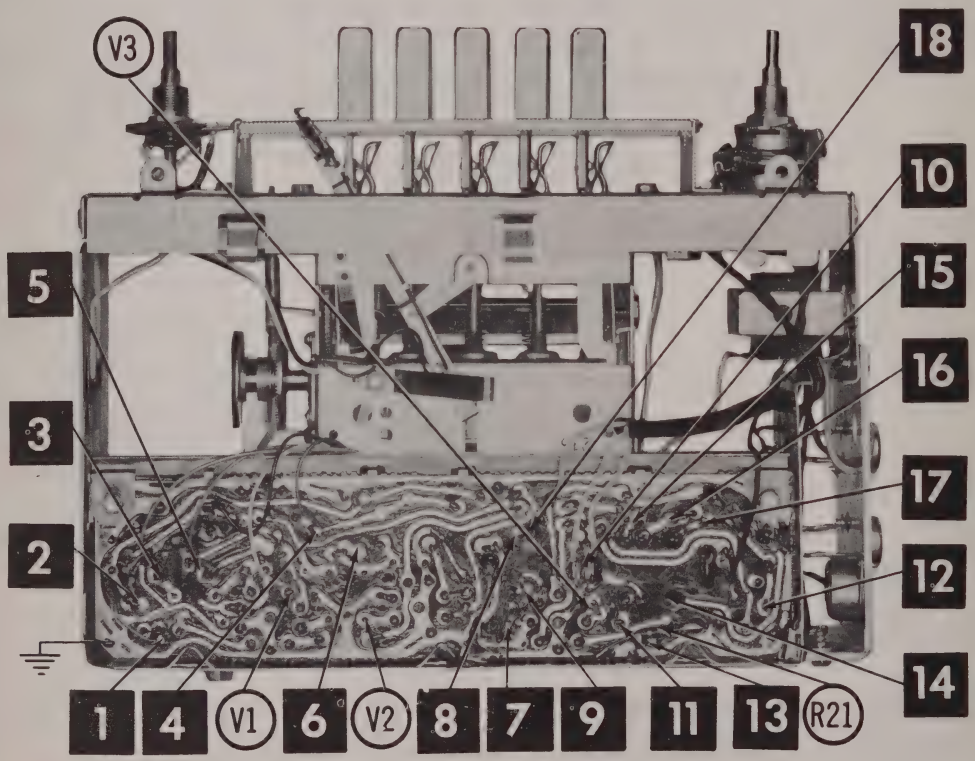
KD811

MOPAR MODEL
317

SET 547 FOLDER 7



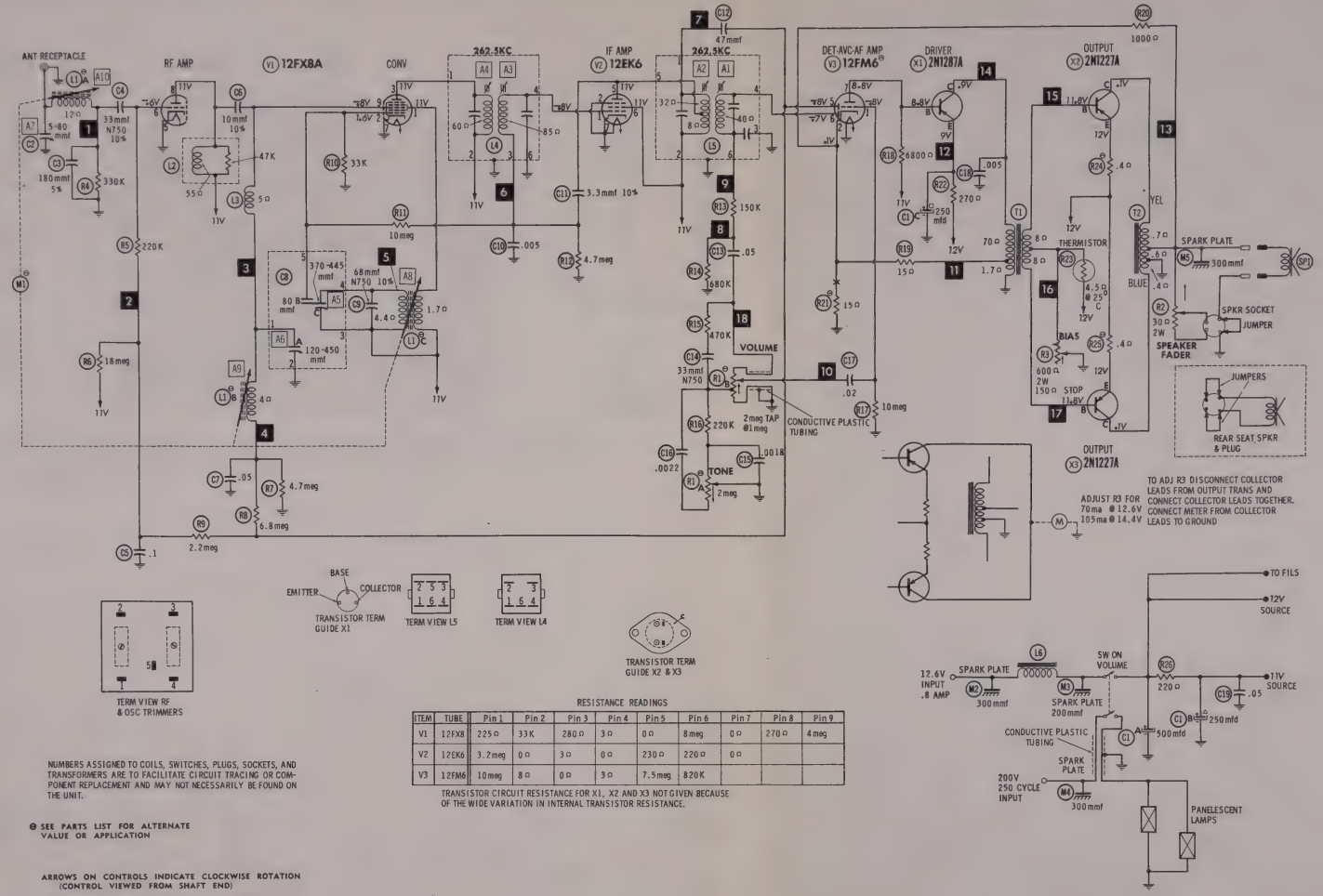
PRINTED BOARD



A Howard W. Sams CIRCUITRACE® Photo

CHASSIS BOTTOM VIEW

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



TERM VIEW RF & OSC TRIMMERS

TRANSISTOR TERM GUIDE X1

TERM VIEW L5

TERM VIEW L4

TRANSISTOR TERM GUIDE X2 & X3

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12FX8	225Ω	33K	280Ω	3Ω	0Ω	8meg	0Ω	270Ω	4meg
V2	12EK6	3.2meg	0Ω	3Ω	0Ω	230Ω	220Ω	0Ω		
V3	12FM6	10meg	8Ω	0Ω	3Ω	7.5meg	820K			

TRANSISTOR CIRCUIT RESISTANCE FOR X1, X2 AND X3 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊙ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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MOPAR MODEL 317

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: BENDIX PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1A B C	Ant. RF Osc.	2090131-25 ①					① Part of M1 ② Includes 47K
L2	RF Choke (2MH)	2090088-12 ②					
L3	RF Choke (65uh)	2090088-11	TV-193	6110	RTC-8573	T338	
L4	Input IF	2090876-5					
L5	Output IF	2090877-6					

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L6	.8A	.5Ω	2MH	2090520-8					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	SEC.	REPLACEMENT DATA: BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.5	1	2090433-8					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	REPLACEMENT DATA: BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	25Ω Tap @ 3-4Ω	2090266-6					

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: BENDIX PART No.	QUAM PART No.	NOTES
SP1	6"x 9"	PM	3-4Ω	2091269-2	69A3	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M1	Tuner	2091577-2	Includes Pushbuttons, Less Pointer
M2	Spark Plate	220267-12	300mmf
M3	Spark Plate	220267-17	200mmf
M4	Spark Plate	220267-12	300mmf
M5	Spark Plate	220267-12	300mmf

CABINETS & CABINET PARTS

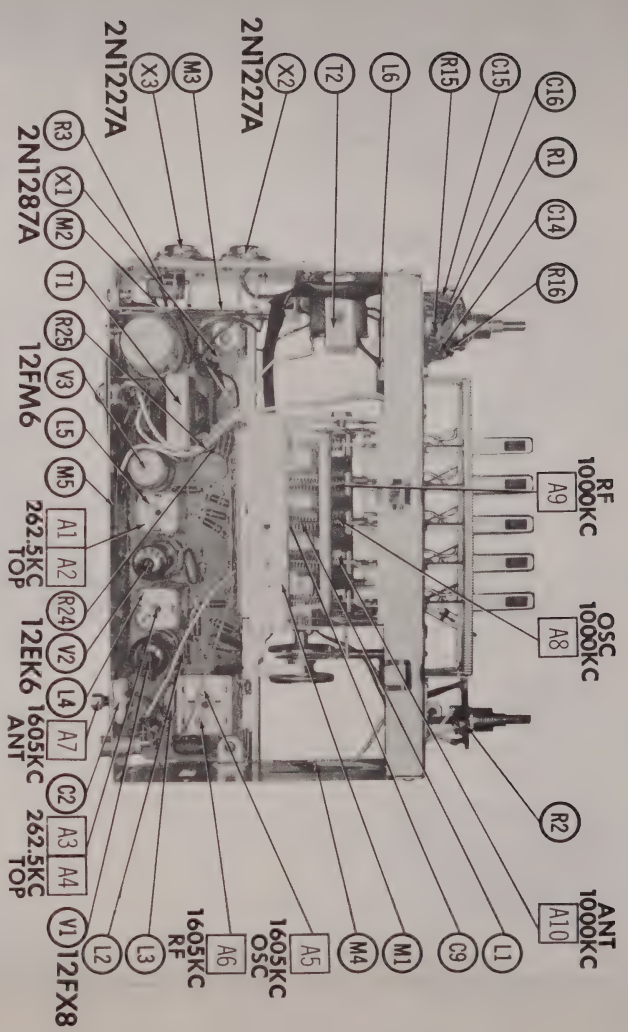
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Lens	2091629-2	Clear, Dial
Pointer	2090966-1	Dial, Panelescent
Pushbutton	2091189-1	
Knob	2091142-1	Tuning, Volume
Knob	2091143-1	Tone, Fader or Disc

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

CHASSIS—TOP VIEW



PHOTOFACT® Folder

MOTOROLA MODEL SH22GL
(Ch. HS-831, HS-832)

MOTOROLA MODEL SH22GL
(Ch. HS-831, HS-832)

MOTOROLA MODEL SH22GL
(Ch. HS-831, HS-832)

TRADE NAME	Motorola Model SH22GL (Ch. HS-831, HS-832)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated 6 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 86 Watts, .8 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER VM 43RC — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

SET 547 FOLDER 8

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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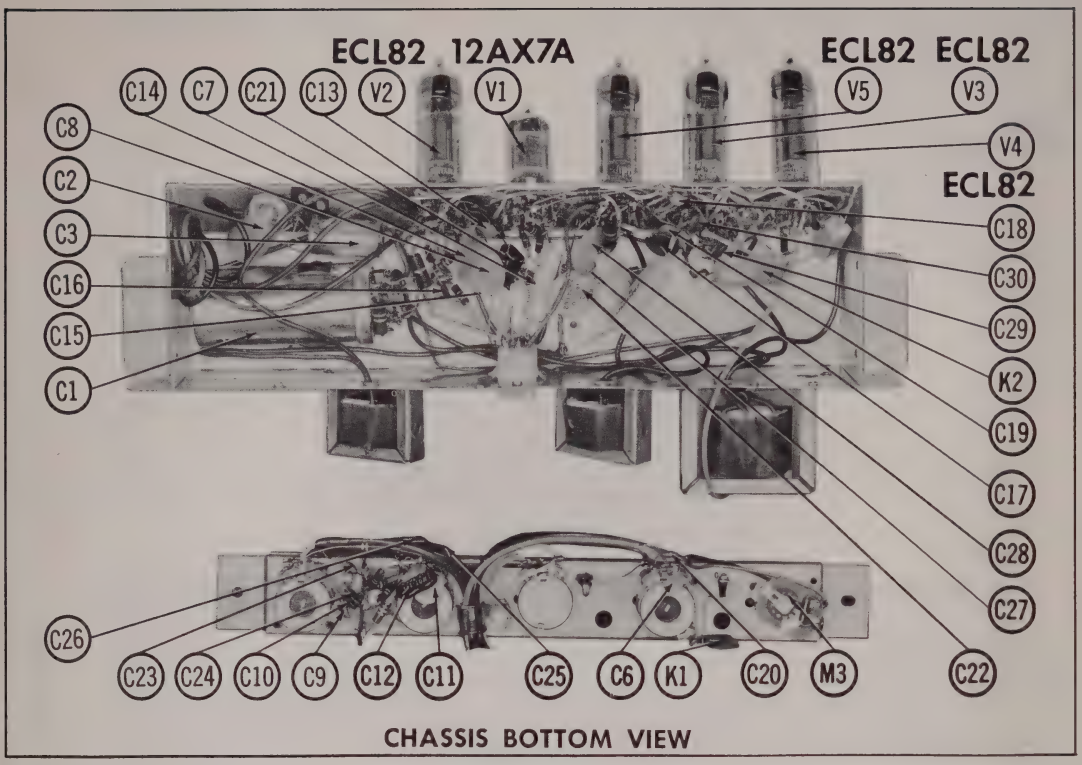
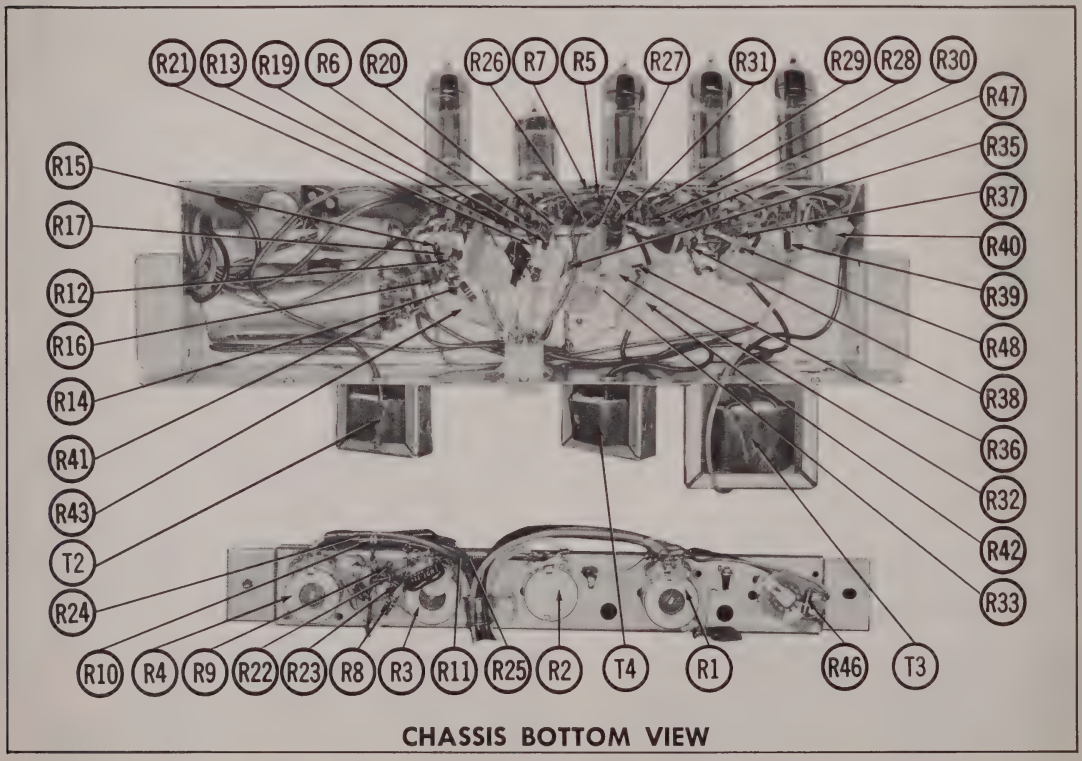
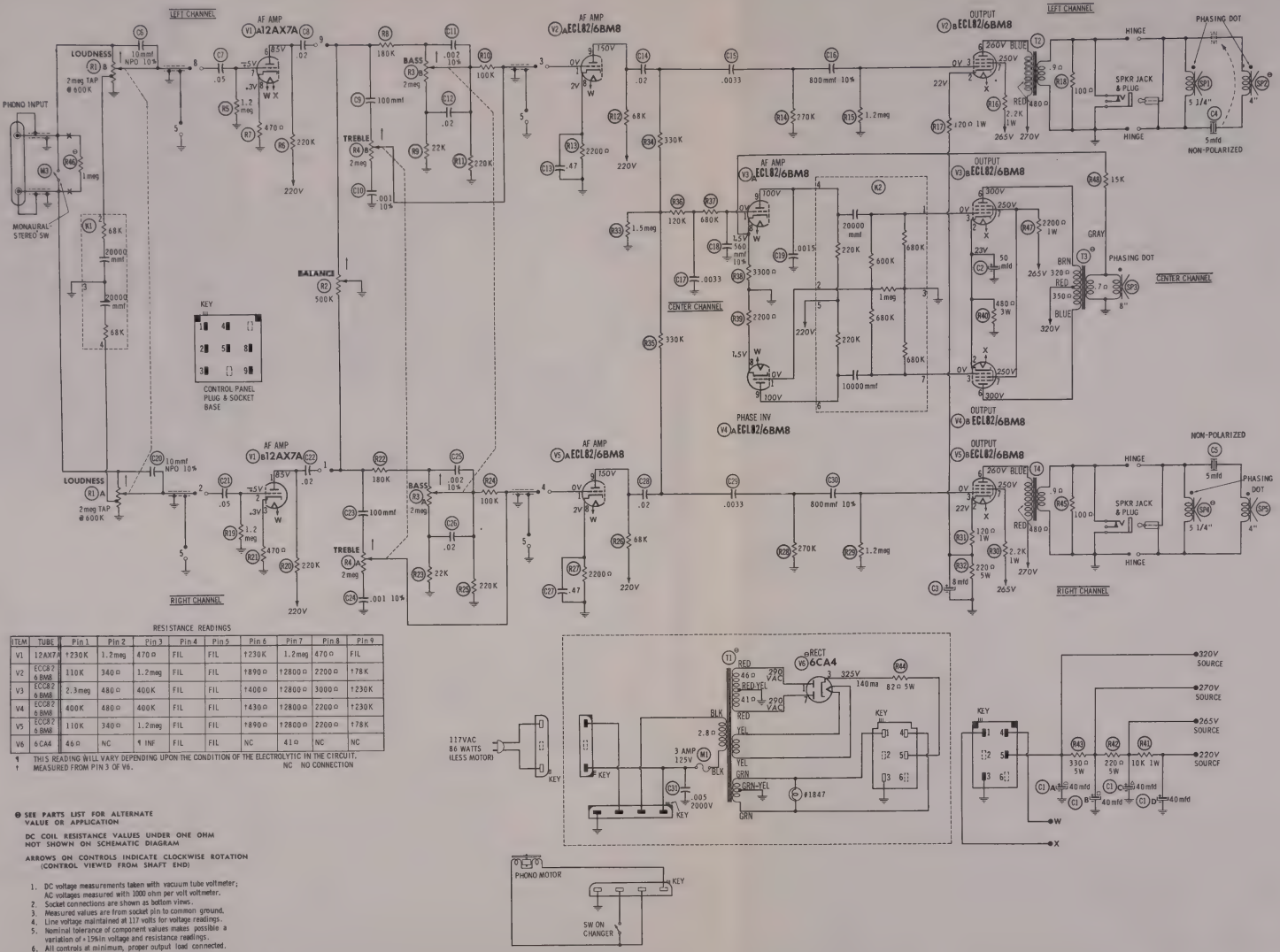


CHASSIS BOTTOM VIEW



CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†230K	1.2meg	470Ω	FIL	FIL	†230K	1.2meg	470Ω	FIL
V2	ECC82 6BM8	110K	340Ω	1.2meg	FIL	FIL	†890Ω	†2800Ω	2200Ω	†78K
V3	ECC82 6BM8	2.3meg	480Ω	400K	FIL	FIL	†400Ω	†2800Ω	3000Ω	†230K
V4	ECC82 6BM8	400K	480Ω	400K	FIL	FIL	†430Ω	†2800Ω	2200Ω	†230K
V5	ECC82 6BM8	110K	340Ω	1.2meg	FIL	FIL	†890Ω	†2800Ω	2200Ω	†78K
V6	6CA4	46Ω	NC	¶ INF	FIL	FIL	NC	41Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6. NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA MODEL SH22GL (Ch. HS-831, HS-832)

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7A
V2	Left Channel AF Amp. - Left Channel Output	ECL82/6BM8
V3	Center Channel AF Amp. - Center Channel Output	ECL82/6BM8
V4	Center Channel Phase Inv. - Center Channel Output	ECL82/6BM8
V5	Right Channel AF Amp. - Right Channel Output	ECL82/6BM8
V6	Rectifier	6CA4 (EZ81) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	400	23D60190A01	AFH4-18-45	C0350	WP447.7	TMQ-4652	TVL-4775	
B	■40	400			BR4045				
C	▲40	350							
D	40	350							
C2	50	50	23C60119A06	PRS1350	BR505	TC39	TD-50-50	TVA-1308	
C3	8	25	23C60119A02	PRS1405	BBR8-150	TC41	TD-8-150	TVA-1405	
C4	5	25NP	23B643970	PRS7405	BBR4-150	TCN505		TVANS-1303.1*	
C5	5	25NP	23B643970	PRS7405	BBR4-150	TCN505		TVANS-1303.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C7	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C11	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C12	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C13	.47 3V			UK-474				HY-130
C14	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C16	800 10%		DI-820	DD-801	5R5T8	CCD-801	GP382	10TS-T80
C17	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C18	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C19	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C20	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C21	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C22	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C23	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C24	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C25	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C26	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C27	.47 3V			UK-474				HY-130
C28	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C30	800 10%		DI-820	DD-801	5R5T8	CCD-801	GP382	10TS-T80
C31	.005 2000V			DD30-502	HVC20D15	3CCD-502	2HV-247	BL-D50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	18D60116A03	BT-174 *			FA26T75	Loudness, Right Channel
	600K Tap							
B	2meg	½		STR-174 *			RU26T75	Loudness, Left Channel
	600K Tap							
C	Shaft			Not Req.			CS3500	
R2	500K	½	18D60116A09					Balance
R3A	2meg	½	18D60116A01	B-76	AD47-2meg-Z		FA26A	Bass, Right Channel
B	2meg	½		SR-76	Not Req.		RU26A	Bass, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	2meg	½	18D60116A01	B-76	AD47-2meg-Z		FA26A	Treble, Right Channel
B	2meg	½		SR-76	Not Req.		RU26A	Treble, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	

* Use 500K Tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS	ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	1.2meg				R16	2200Ω 1W			
R6	220K				R17	120Ω 1W			
R7	470Ω				R18	100Ω			
R8	180K				R19	1.2meg			
R9	22K				R20	220K			
R10	100K				R21	470Ω			
R11	220K				R22	180K			
R12	68K				R23	22K			
R13	2200Ω				R24	100K			
R14	270K				R25	220K			
R15	1.2meg				R26	68K			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R27	2200Ω			
R28	270K			
R29	1.2meg			
R30	2200Ω 1W			
R31	120Ω 1W			
R32	220Ω 5W	PW5-220	5W-SQ-220	
R33	1.5meg			
R34	330K			
R35	330K			
R36	120K			
R37	680K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R38	3300Ω			
R39	2200Ω			
R40	480Ω 3W	PW3-480	3W-SQ-480	
R41	10K 1W			
R42	220Ω 5W	PW5-220	5W-SQ-220	
R43	330Ω 5W	PW5-330	5W-SQ-330	
R44	82Ω 5W	PW5-82	5W-SQ-82	
R45	100Ω			
R46	1meg			Note 1
R47	2200Ω 1W			
R48	15K			

Note 1. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1 K2	Loudness Comp. Audio Coupling	2000mmf, 2000mmf, 68K, 68K 10000mmf, 20000mmf, 220K, 220K, 600K, 680K, 680K, 680K, 1meg	51B644164 51B60422A01	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .8A	580VCT Ⓐ .140A DC	6.3V Ⓐ .9A	25C60395A02-B①					① Alternate Part # 25C60395A02
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT Ⓐ 3.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω	6-8Ω	25K647133-J	A-2902①	A-3850	22S86	S-63X	① Drill new mounting hole(s).
T3	10KΩ CT	6-8Ω	25C60394401C②	A-2901①	A-3870	24S14	S-55X	② Alternate Part #25C60394A01
T4	6200Ω	6-8Ω	25K647133-J	A-2902①	A-3850	22S86	S-63X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5 1/4"	PM	6-8Ω	50K647117	52A1Z8	* Part #50K647116 may be used.
SP2	4"	PM	6-8Ω	50K647362*	4A07Z8	
SP3	8"	PM	6-8Ω	50K647110	8A31PA	
SP4	5 1/4"	PM	6-8Ω	50K647117*	52A1Z8	
SP5	4"	PM	6-8Ω	50K647362	4A07Z8	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3AG 125V P/T	65A646112		315003 (3AG 3A 125V)		MDV3	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	MOTOROLA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	59C60336A01	59C60336A04* or 59C60336A05 (LP) ①	13TB	Not Req.	26S	S1-1	9TA4-S	N-9TA-S *	①Alternate Part No.
		59C60336A03* (78RPM)				S3-3			

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Switch Spindle	40K647136 47K642167	Function Selector (Wafer Type) 45RPM

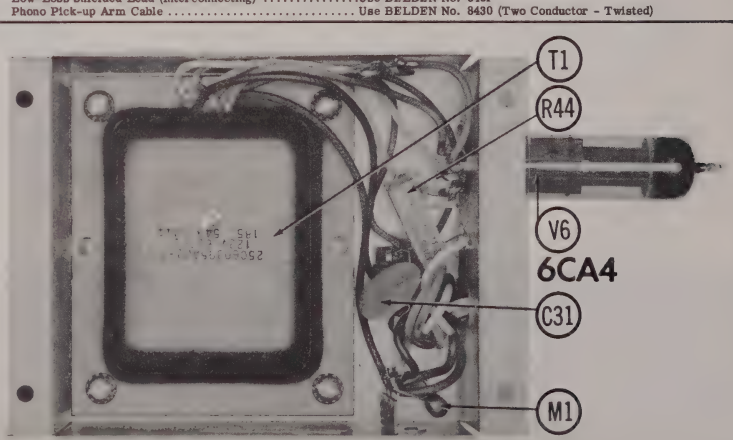
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36060203A09	Loudness, Bass, Treble
Knob	36060203A27	Balance
Knob	36060203A25	Function
Cabinet	15E60430A01	Gold
Base	15E646994	Brown
Handle	55K645576	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



POWER CHASSIS

PHOTOFACT® Folder with CIRCUITRACE®

NORELCO MODELS LOX95T/62D, LOX95T/62L, LOX95T/62R

NORELCO MODELS LOX95T/62D, LOX95T/62L, LOX95T/62R

MODEL LOX95T/62R

NORELCO MODELS LOX95T/62D, LOX95T/62L, LOX95T/62R

TRADE NAME	Norelco Models LOX95T/62D, LOX95T/62L, LOX95T/62R
SUPPLIER	North American Philips Co., Inc., 100 E. 42nd Street, New York 17, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	4.5 Volts DC
RATING	9MA @ 4.5 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	522 — 1622KC
	15MA @ 4.5 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools: A4, A6.... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	452KC (400~ 30% AM)	Tuning gang fully open. (High end stop)	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1635KC	"	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1500KC	1500KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 547 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	OC44	Converter		2N486	2N412	PNP
X2	OC45	1st IF Amplifier		2N483	2N410	PNP
X3	OC45	2nd IF Amplifier		2N483	2N410	PNP
X4	OC71	AF Amplifier	2N406	2N362	2N406	PNP
X5	OC71	Driver	2N406	2N362	2N406	PNP
X6	2N217	Output	2N407	2N631	2N217	PNP
X7	2N217	Output	2N407	2N631	2N217	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	NORELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	3.2	6.4	C426AE/G3.2	PTT36	NLW4-15	TT12X3	MLV5-12	TE-1082	
C2	3.2	6.4	C426AD/C3.2	PTT36	NLW4-15	TT12X3	MLV5-12	TE-1082	
C3	20	6.4	C426AM/C20	PTT41	NLW20-6	TT15X20	MLV20-12	TE-1090	
C4	20	6.4	C426AM/C20	PTT41	NLW20-6	TT15X20	MLV20-12	TE-1090	
C5	80	6.4	C426AM/C80	PTT46	NLW75-10	TT6X80	MLV100-10	TE-1101.5	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	47000		C80V503AM	DA-503	H-0585		TA-150	TG-S50
C7	10000		C80V103AM	DM-103	H-0581		TA-110	TG-S10
C8	6.8 N750 5%				C10V68U		CN7-568	
C9	64 N750		N750-SI 62	TCN-62	C10Q62U	CCTN-620		
C10	47000		C80V503AM	DA-503	H-0585		TA-150	TG-S50
C11	30 N750		N750-SI 30	TCN-30	C10Q3U	CCTN-330	CN7-430	10TCU-Q33
C12	47000		C80V503AM	DA-503	H-0585		TA-150	TG-S50
C13	47000		C80V503AM	DA-503	H-0585		TA-150	TG-S50
C14	47000		C80V503AM	DA-503	H-0585		TA-150	TG-S50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NORELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	10K	1/10	B151487					Volume & Switch

RESISTORS

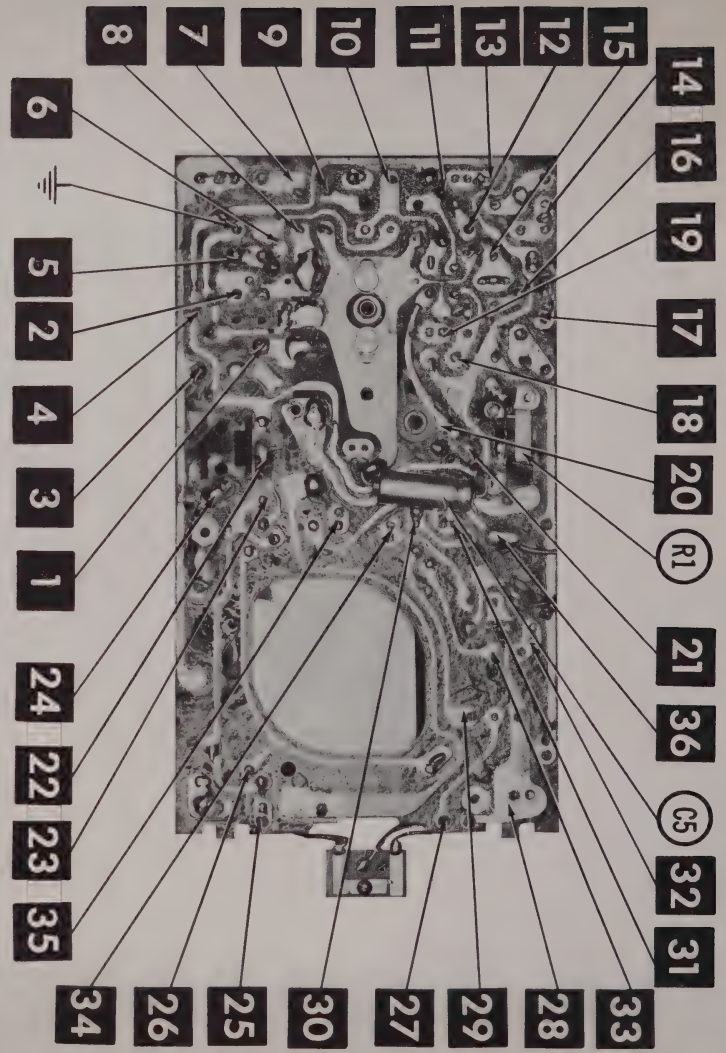
All wattages 1/2 watt, or less, unless otherwise listed.

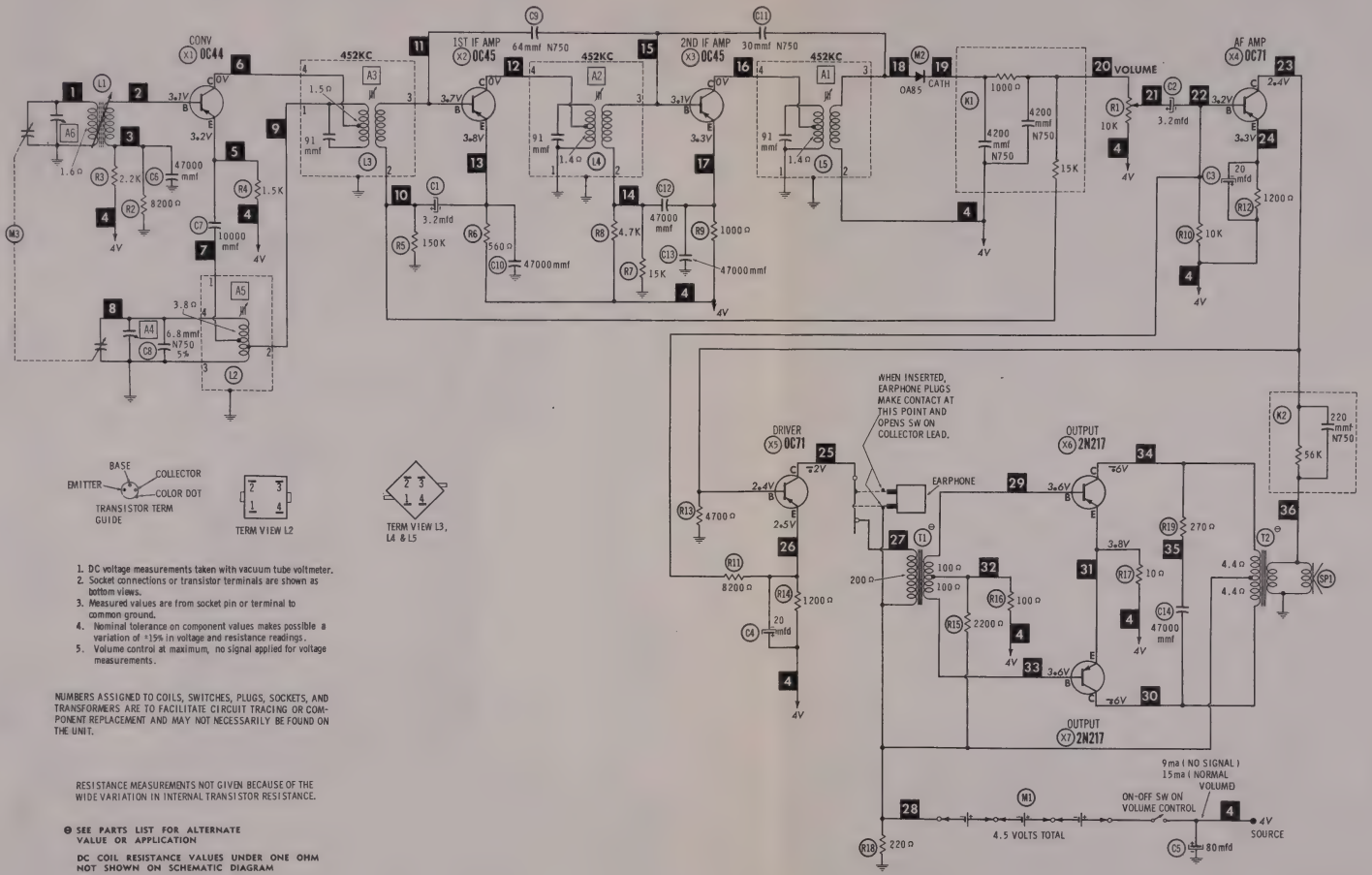
ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	8200Ω				R11	8200Ω			
R3	2200Ω				R12	1200Ω			
R4	1500Ω				R13	4700Ω			
R5	150K				R14	1200Ω			
R6	560Ω				R15	2200Ω			
R7	15K				R16	100Ω			
R8	4700Ω				R17	10Ω			
R9	1000Ω				R18	220Ω			
R10	10K				R19	270Ω			

(CONTINUED ON REAR PAGE)

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD





1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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NORELCO MODELS LOX95T/62D, LOX95T/62L, LOX95T/62R

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	NORELCO PART No.	REPLACEMENT DATA
K1	Diode RF Filter	4200mmf, 4200mmf, 10000Ω, 15K (N750)	2P72524	
K2	Feedback Coupling	220mmf, 56K (N750)	2P72522	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		NORELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	A398648					
L2	Osc.	A312976					
L3	1st IF	A312960					
L4	2nd IF	A312960					
L5	3rd IF	A312961					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	NORELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1, 2	1	A316218, 2①		TA-30			① Alternate Part #A316218

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	NORELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	250Ω CT	10-12Ω	A315422, 1 ①		TA-20②	TR-15 ②		① Alternate Part # A315422 ② Remove Frame

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	NORELCO PART No.	QUAM PART No.	
SP1	2½"	PM	10-12Ω	AD2216Z		

BATTERIES

ITEM No.	VOLTAGE	NORELCO PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1, 5V			930 *		1015 *		M-15R*	* 3 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		NORELCO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	OA85			1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	NORELCO PART No.	NOTES
M3	Tuning Cap.	4900251	2 Gang

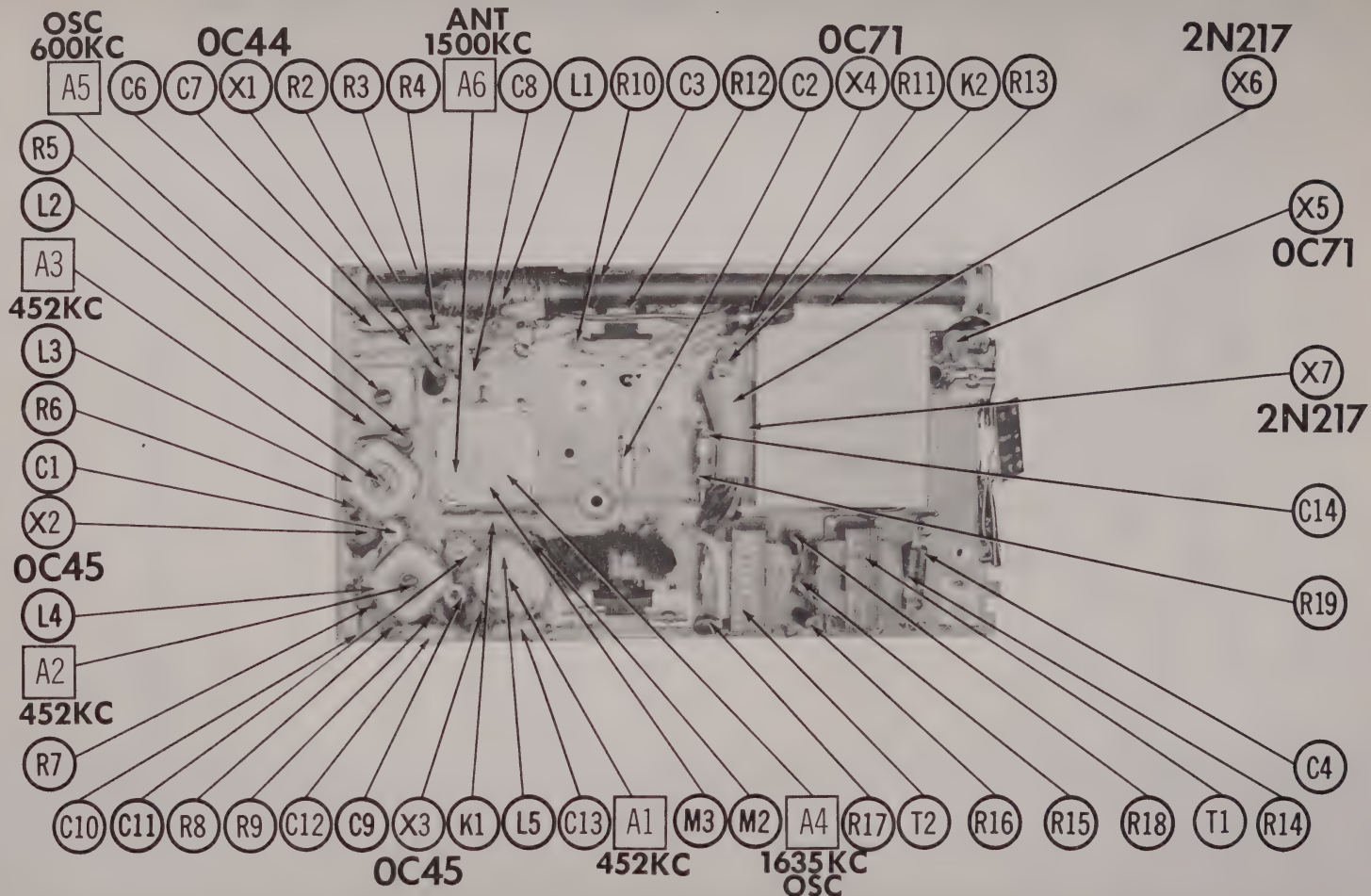
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Window	A376340	
Dial	928/LOX95T	
Knob	A378401	
Cabinet	P525007/350/FC	Model LOX95T/62D
Cabinet	P525007/350/JT	Model LOX95T/62L
Cabinet	P525007/350/HA	Model LOX95T/62R

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors



CHASSIS TOP VIEW

PHOTOFACT® Folder with CIRCUITRACE®

PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

MODEL RPC-5

TRADE NAME	Packard Bell Model RPC-5 (Tuner Ch. 7TU-4, Amp. Ch. DPA-10) * RPC-7 (Tuner Ch. 7TU-4, Amp. Ch. DPA-10) * RPC-8 (Tuner Ch. 7TU-4, Amp. Ch. TPA-50) *† RPC-9 (Tuner Ch. 8TU-3, Amp. Ch. TPA-50) *† *RMS-2 (Remote Balance and Volume Controls Optional) †ST-2 (Speaker Enclosure Optional)
MANUFACTURER	Packard Bell Electronics Corp., Service Div., 1920 S. Figueroa St., Los Angeles 7, Calif.
TYPE SET	AC Operated FM-AM Tuner With Stereo Amplifier and 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles
RATING	Model RPC-5, RPC-7: 94 Watts, .9 Amp. @117 Volts AC (Less Motor) RPC-8: 160 Watts, 1.5 Amp. @117 Volts AC (Less Motor) RPC-9: 175 Watts, 1.6 Amp. @117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	540 – 1600KC FREQ. MOD. 88 – 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #58087 – USED IN MODEL RPC-5 – SEE V-M1201– PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

FOR SERVICE INFORMATION ON RECORD CHANGER PART #58074 – USED IN MODEL RCP-7 – SEE COLLARO CONQUEST (REVISED) – PHOTOFACT SET 408 FOLDER 6 OR RECORD CHANGER MANUAL RC-11 (SOME VERSIONS MAY USE THE V-M CHANGER LISTED ABOVE)

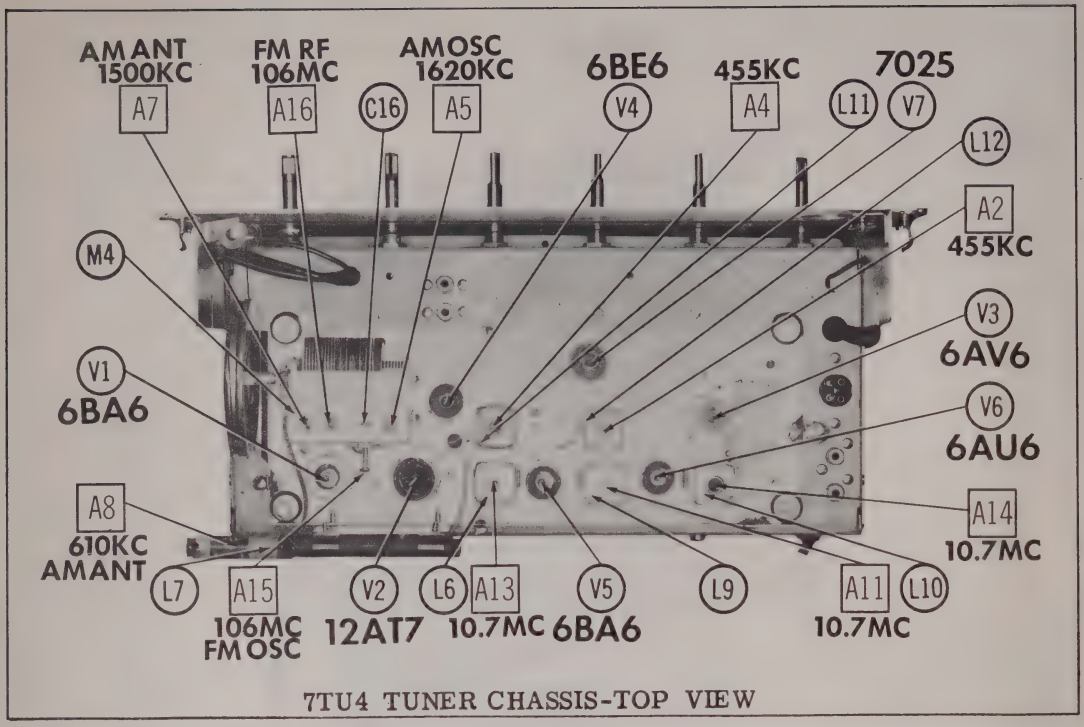
FOR SERVICE INFORMATION ON RECORD CHANGER PART #58084D USED IN MODELS RPC-8, RPC-9 – SEE GLASER-STEERS GS-77 (REVISED) – PHOTOFACT SET 482 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

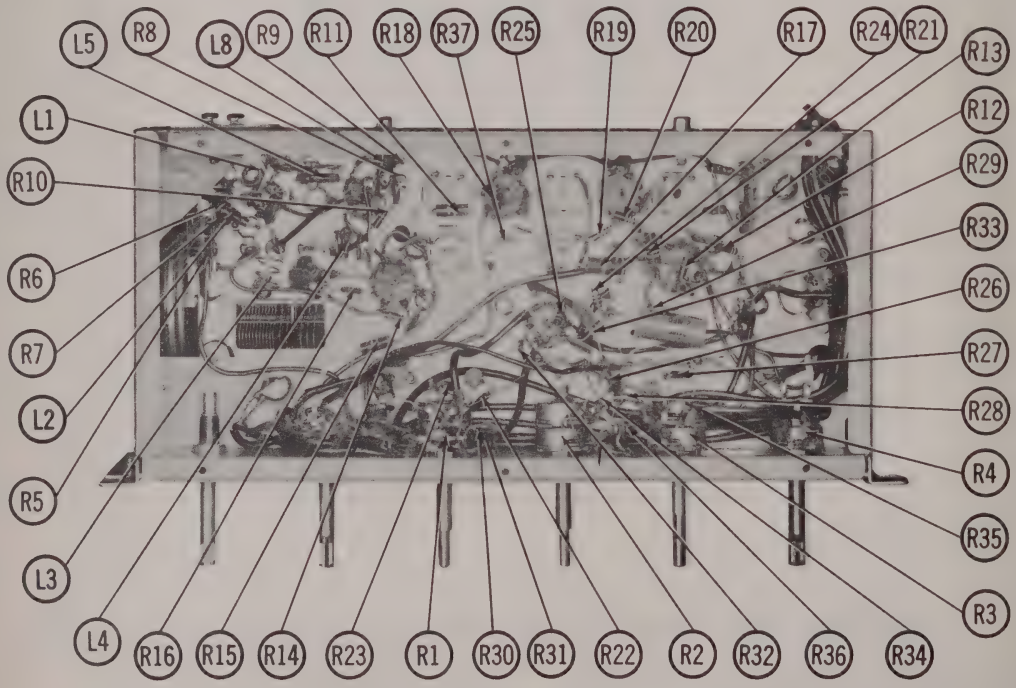
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KN530

SET 547 FOLDER 10



7TU4 TUNER CHASSIS-TOP VIEW



7TU4 TUNER CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

7TU4

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A4.....GENERAL CEMENT#5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A7, A15, A16.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6, A9, A14.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A10 thru A13.....GENERAL CEMENT #8721, 8722
WALSCO #2519

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ 30% AM)	(AM) Tuning gang fully open.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	530KC	Tuning gang fully closed.	"	A6	"
4.	"	1500KC	1500KC Signal.	"	A7	"
5.	"	610KC	610KC Signal.	"	A8	Adjust for maximum deflection. Repeat Steps 2, 3, 4 and 5.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓑ. Common to chassis.	A9, A10, A11, A12, A13	Adjust for maximum deflection.
7.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE – SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓑ. Low side to chassis.	A9, A10, A11, A12, A13	Disconnect Stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
7.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A9 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

AFC switch pulled out to "OFF" position.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals with 150Ω in each lead.	106MC (Unmod.)	(FM) 106MC	DC probe to point Ⓑ. Common to chassis.	A15, A16	Adjust for maximum deflection.
9.	"	92MC	92MC	"	L4, L3	Adjust for maximum deflection by expanding or compressing coil turns.

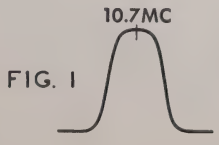


FIG. 1

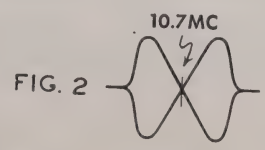
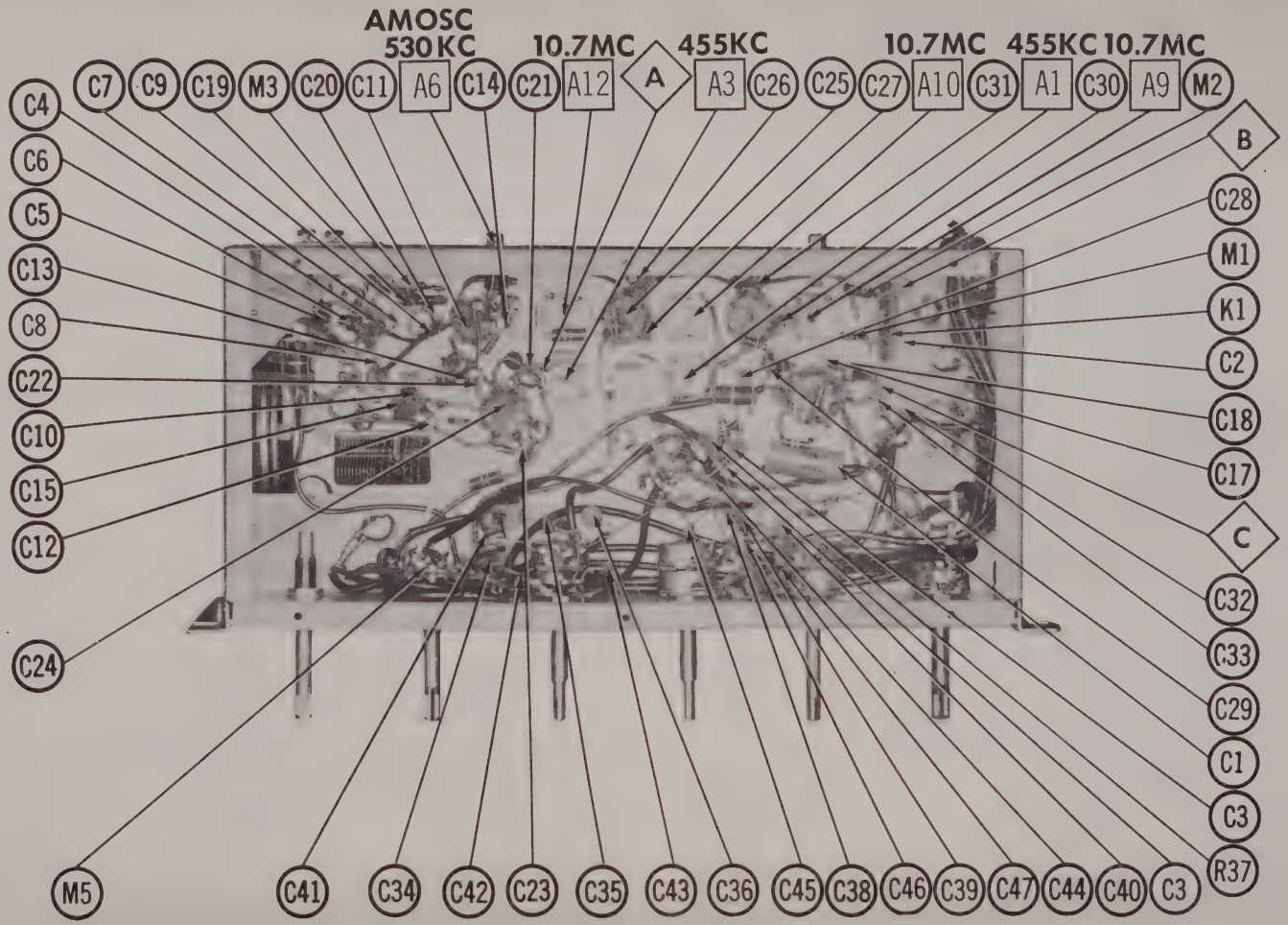


FIG. 2



7TU4 TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.

7TU4 TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	FM RF Amplifier	6BA6
V2	FM Mixer-FM Osc.	12AT7
V3	AFC Amp.	6AV6
V4	AM Converter	6BE6
V5	1st FM-AM IF Amp.	6BA6
V6	2nd FM IF Amp.-AM Det.	6AU6
V7	Left Channel AF Amp.-Right Channel AF Amp.	7025

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	3	350	24185	PRS1705	BR345	TC595	TD-3-350	TVA-1701	
C2	5	50	24184	PTT-50005	NLW5-50	TT50X5	MLV5-50	TE-1303	
C3	40	10	24151	PTT-10040	NLW40-10	TT15X40	MLV40-12	TE-1119	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C9	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	L, 5-10%		NPO-SL 1, 5	TCZ-1R5	C10V15C		CNO-512	10TCC-V15
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	10 N330 5%			TCA-10				10TCH-Q10
C14	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C15	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	68 NPO 5%			DTZ-68	C10Q68C		CNO-468	10TCC-Q68
C18	L, 5-10	423430A		839-10				
C17	50000		BPD-05	DD-503	H-05S5	UDP-2-503	GP150	5HK-S50
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	L, 5 10%		NPO-SL 1, 5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C21	50000		BPD-05	DD-503	H-05S5	UDP-2-503	GP150	5HK-S10
C22	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C25	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C29	5000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	100		DE-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C33	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	220		DE-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C39	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	47		DL-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	220		DE-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C46	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

• Packard Bell Part Number
** Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Packard Bell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	25079					Loudness, Right Channel
B	100K Tap 1meg 100K Tap	½						Balance, Left Channel
R2A	1meg	½	25532	F1-51				Treble, Right Channel
B	1meg	½		R2-51				Treble, Left Channel
C	Spring			AK-32				Friction Drive
R3A	1meg	½	25532	F1-51				Bass, Right Channel
B	1meg	½		R2-51				Bass, Left Channel
C	Spring			AK-32				Friction Drive
R4A	5meg	½	25096A			B17-141		Dimension
B	Switch					SK7		Push-Pull-Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	560Ω 2W			
R6	100Ω			
R7	68Ω			
R8	3.3meg			
R9	10Ω			
R10	22K			
R11	10K 1W			
R12	4.7meg			
R13	1200Ω			
R14	10Ω			
R15	10K 1W			
R16	22K			
R17	820Ω 2W			
R18	68Ω			
R19	47K			
R20	470K			
R21	18K 1W			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R22	33K			
R23	22K			
R24	33K			
R25	2.2meg			
R26	22K			
R27	22K			
R28	47K			
R29	100K			
R30	33K			
R31	220K			
R32	1.5meg			
R33	22K			
R34	33K			
R35	47K			
R37	3.3meg			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Packard Bell Part No.	REPLACEMENT DATA
K1	Ratio Detector Network	100mmf, 100mmf, 100mmf, 1000mmf, 47Ω, 10000, 15000, 68000, 68000, 47K	23627A	Aerovox PA-4A3A Centralab MC-4A3 Sprague T-43

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Packard Bell PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	FM Ant.	29426B					
L2	RF Choke (luh)	29124	BC-561	4602	RTC-4515	T955	
L3	FM RF	29165					
L4	FM Osc.	29243A					
L5	RF Choke (luh)	29124	BC-561	4602	RTC-4515	T955	
L6	1st FM IF	29148	FM-254	4463	RTC-4539	T903	
L7	Loopstick	29364	BC-419	705-A		T902	
L8	AM Osc.	29247A	BC-393	70-OSC	RTC-4548	T902	
L9	1st AM IF	29077	BC-352	12-C1	RTC-4532	T907	
L10	2nd FM IF	29152	FM-254	4463	RTC-4539	T903	
L11	2nd AM IF	29078	BC-353	12-C2	RTC-4533	T903	
L12	Ratio Detector	29084	FM-255	4465	RTC-4600	T905	

PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

FOLDER 10

SET 547 FOLDER 10

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7TU4 TUNER PARTS LIST (Continued)

SIGNAL DIODES

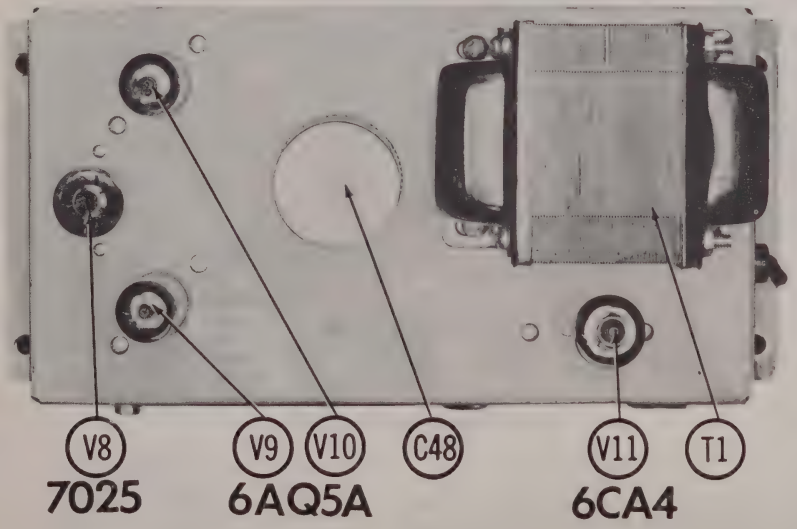
ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Packard Bell PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1	1N541	72027		1N295	1N295	Ratio Det. Matched Pair
M2	1N541	72027		1N295	1N295	
M3	1N295	72080		1N295	1N295	AFC

MISCELLANEOUS

ITEM No.	PART NAME	Packard Bell PART No.	NOTES
M4	Tuning Cap.	23561	4 Gang (AM Sections: Ant. 24—324mmf, Osc. 14—120mmf)
M5	Switch	86082A	Function Selector (Rotary Wafer Type)

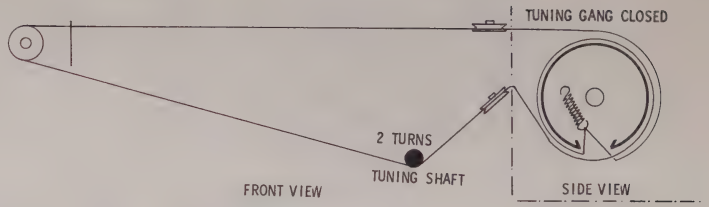
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

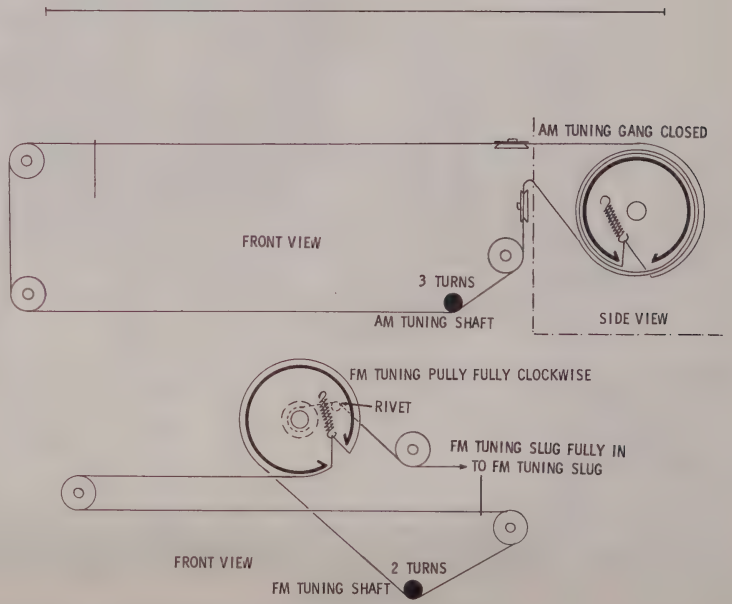


DPA—10 POWER CHASSIS—TOP VIEW

DIAL CORD STRINGING



DIAL CORD PERTAINING TO CHASSIS 7TU4



DIAL CORD PERTAINING TO CHASSIS 8TU3

DPA—10 POWER CHASSIS PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •		RAYTHEON • SYLVANIA •			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V8	Left Channel AF Amp. - Right Channel AF Amp.	7025	V10	Right Channel Output	6AQ5A
V9	Left Channel Output	6AQ5A	V11	Rectifier	6CA4 *EZ81) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C48A	▲40	350	24092	AFH4-52	D0430	FP419.3	TMQ-4241	TVL-4621.6	
B	■40	350							
C	▲20	350							
D	25	25							
C49	5	25NP	24146	PRS7405	BBR4-150	TCN504		TVANS-1303.1*	
C50	5	25NP	24146	PRS1705	BBR4-150	TCN504		TVANS-1303.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C51	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C53	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R38	220K			
R39	470K			
R40	390Ω			
R41	3900Ω			
R42	100K			
R43	270Ω 1W			
R44	220K			
R45	470K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R46	390Ω			
R47	3900Ω			
R48	100K			
R49	270Ω 1W			
R50	1500Ω 5W	PW5-1500	5W-SQ-1500	
R51	600Ω 12W	PW15-600	15W-SQ-600	
R52	100Ω			
R53	100Ω			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Packard Bell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .9A	600VCT @ .140A DC	6.3V @ 2.4A	89087					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 2A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Packard Bell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4000Ω	3-4Ω	89436F	A-2930	A-3877	24S05	S-41X	
T3	4000Ω	3-4Ω	89436F	A-2930	A-3877	24S05	S-41X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Packard Bell PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"x 9"	PM	3-4Ω	83112B	69A3	* Replaces SP1 and SP3 in some versions
SP2	4"	PM	3-4Ω	83019-A	4A05	
SP3	6"x 9"	PM	3-4Ω	83112B	69A3	
SP4	4"	PM	3-4Ω	83019-A	4A05	
	6"x 9"	PM	3-4Ω	83112A *	69A2	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	Packard Bell PART No. CARTRIDGE	Packard Bell PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M6	63048	Not Req.	13TBX	Not Req.	26SD	S1-1* & S3-3 *	8TA4-SD	N-8TA-SD *	Models RPC-5, RPC-7

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

DPA—10 POWER CHASSIS—BOTTOM VIEW

SET 547 FOLDER 10

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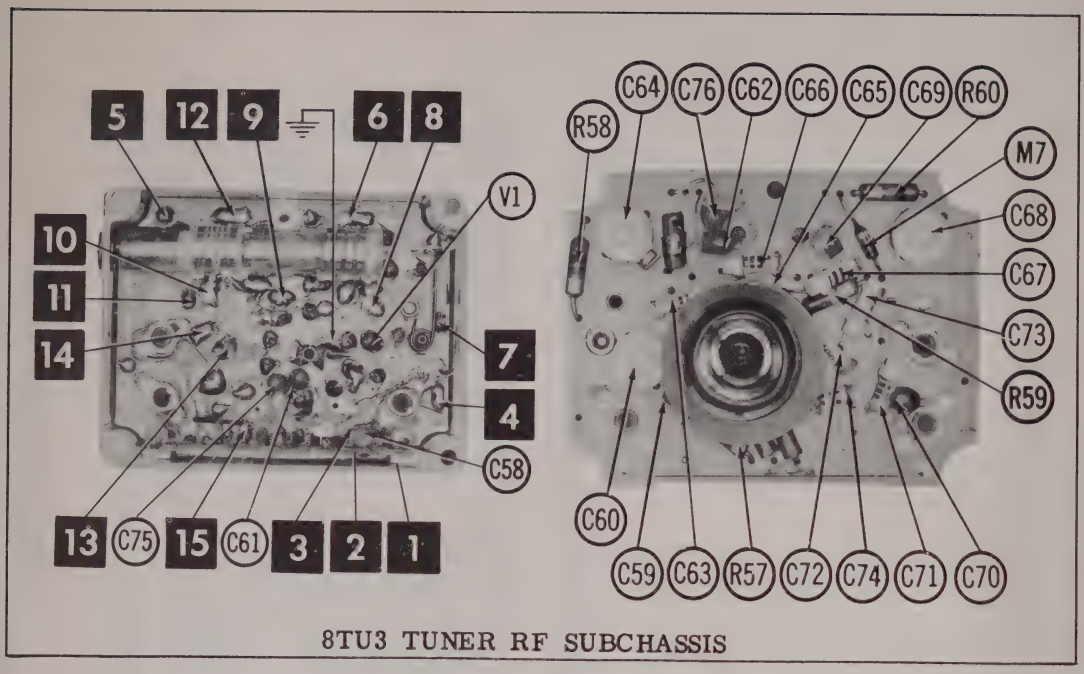
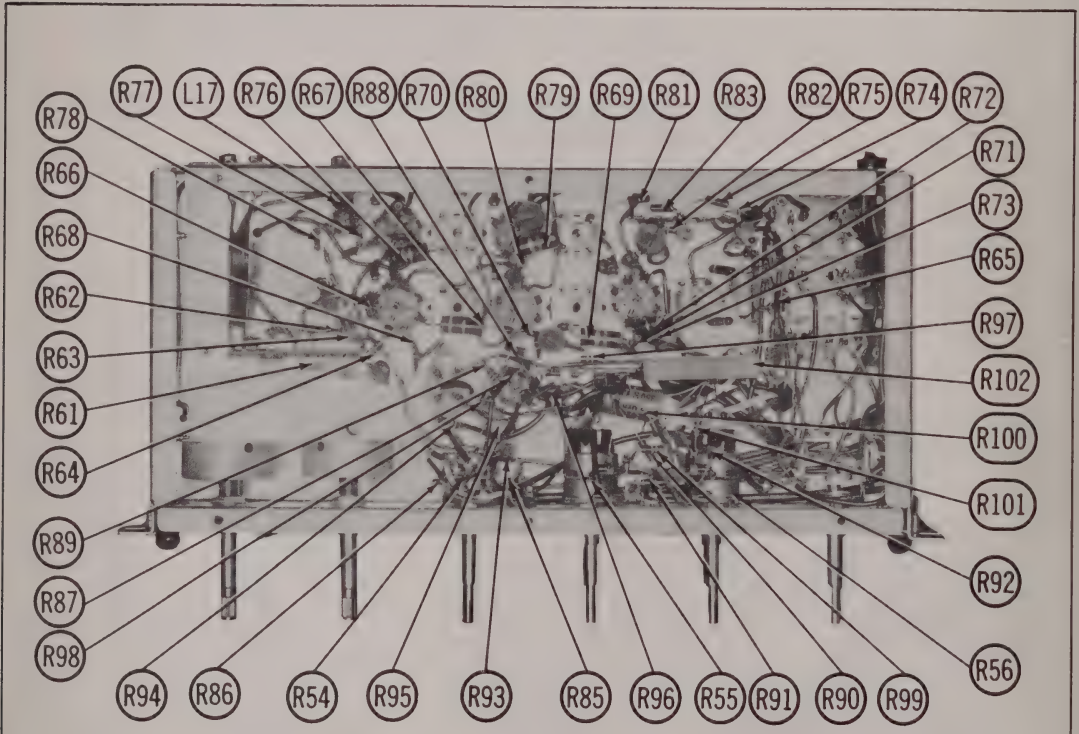
FOLDER 10

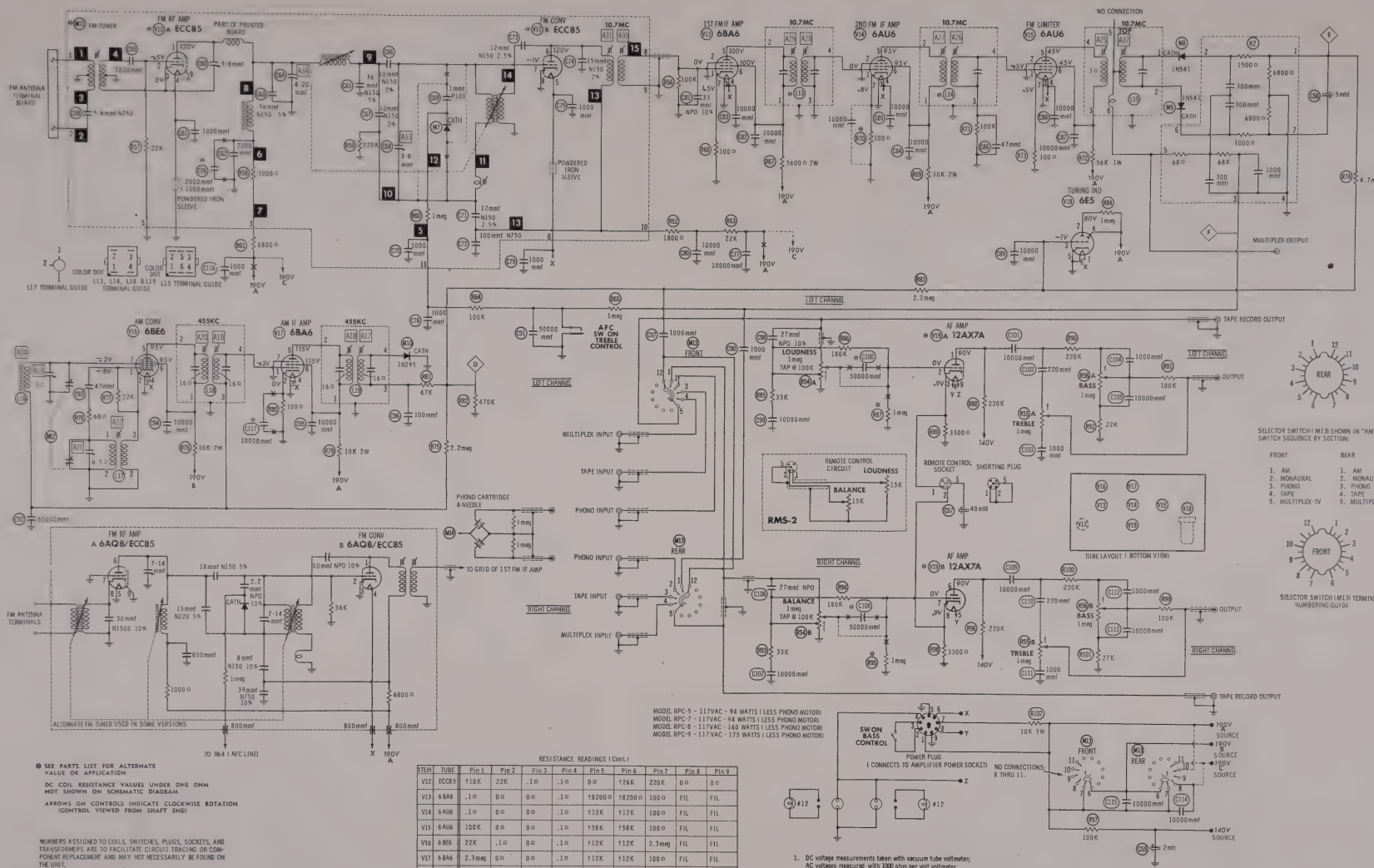
PACKARD-BELL MODELS
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)
RPC-5, -7, -8, -9, RMS-2, ST-2



8TU3 TUNER RF SUBCHASSIS



8TU3 TUNER CHASSIS BOTTOM VIEW-RESISTOR IDENT.



RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V12	ECC85	†10K	22K	.1Ω	.1Ω	0Ω	†26K	220K	0Ω	0Ω
V13	6BA6	.1Ω	0Ω	0Ω	.1Ω	†8200Ω	†8200Ω	100Ω	FIL	FIL
V14	6AU6	.1Ω	0Ω	0Ω	.1Ω	†12K	†12K	100Ω	FIL	FIL
V15	6AU6	100K	0Ω	0Ω	.1Ω	†58K	†58K	100Ω	FIL	FIL
V16	6BE6	22K	.1Ω	0Ω	.1Ω	†12K	†12K	2.3meg	FIL	FIL
V17	6BA6	2.3meg	0Ω	0Ω	.1Ω	†12K	†12K	100Ω	FIL	FIL
V18	6E5	.1Ω	†1meg	1.8meg	†2600Ω	0Ω	0Ω	FIL	FIL	FIL
V19	12AX7A	†320K	1meg	1700Ω	50Ω	50Ω	†320K	1meg	1700Ω	50Ω

ALL MEASUREMENTS MADE IN "AM-FM" STEREO POSITION.
† MEASURED FROM PIN 8 OF V26.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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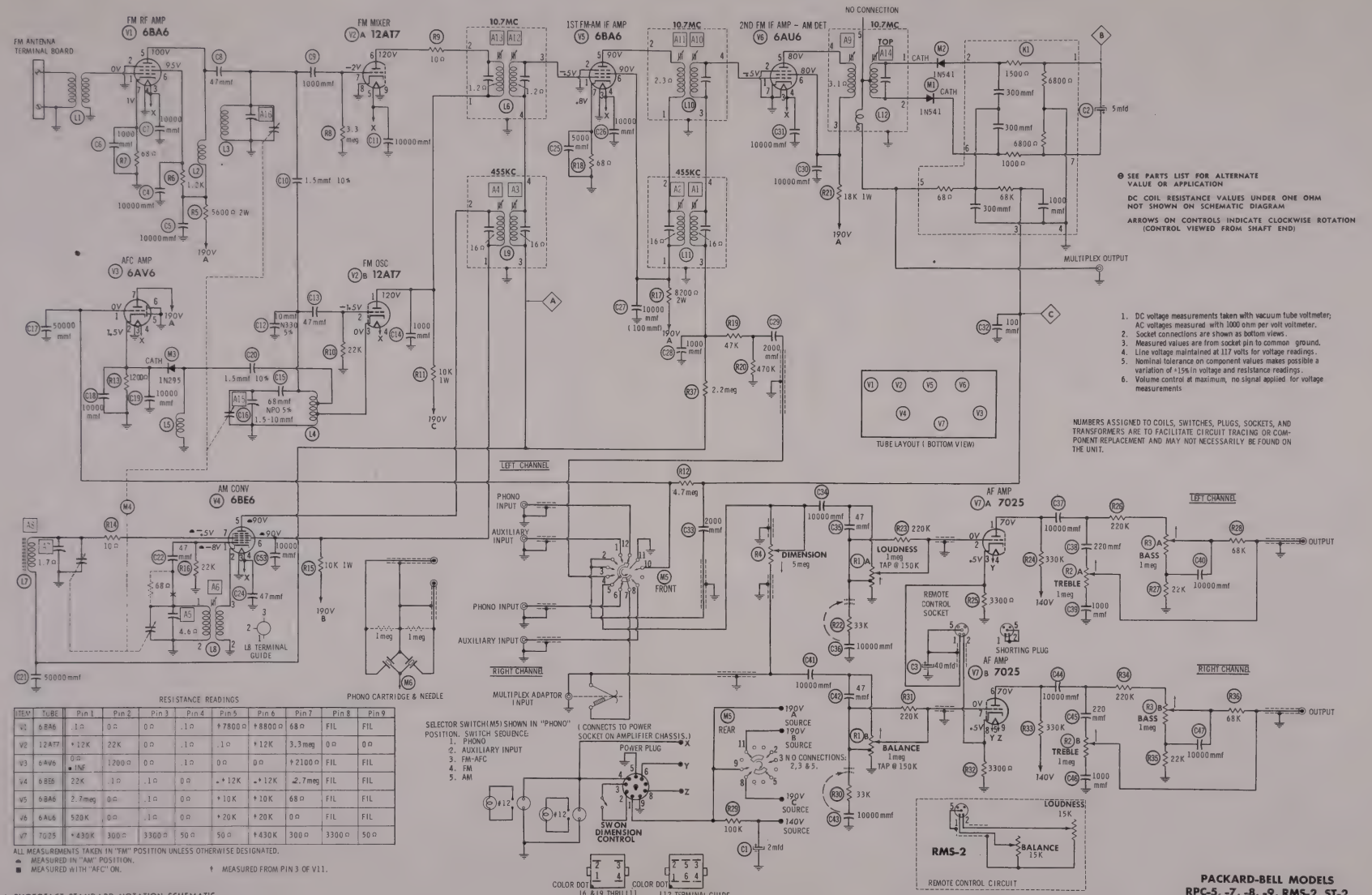
PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

8TU3 TUNER CHASSIS


FM RF AMP V1 6BA6
FM MIXER V2A 12AT7
10.7MC
1ST FM-AM IF AMP V5 6BA6
10.7MC
2ND FM IF AMP - AM DET V6 6AU6
10.7MC
NO CONNECTION
FM ANTENNA TERMINAL BOARD
455KC
455KC
AFC AMP V3 6AV6
FM OSC V2B 12AT7
MULTIPLEX OUTPUT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements
TUBE LAYOUT (BOTTOM VIEW)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
LEFT CHANNEL
AM CONV V4 6BE6
PHONO INPUT
AUXILIARY INPUT
PHONO INPUT
AUXILIARY INPUT
RIGHT CHANNEL
MULTIPLEX ADAPTOR INPUT
LB TERMINAL GUIDE
PHONO CARTRIDGE & NEEDLE
AF AMP V7A 7025
AF AMP V7B 7025
DIMENSION 5meg
LOUDNESS 1meg TAP @ 150K
BALANCE 1meg TAP @ 150K
BASS 1meg
TREBLE 1meg
REMOTE CONTROL SOCKET
SHORTING PLUG
OUTPUT
SELECTOR SWITCH(M5) SHOWN IN "PHONO" POSITION. SWITCH SEQUENCE:
1. PHONO
2. AUXILIARY INPUT
3. FM-AFC
4. FM
5. AM
(CONNECTS TO POWER SOCKET ON AMPLIFIER CHASSIS.)
POWER PLUG
SW ON DIMENSION CONTROL
REAR
3 NO CONNECTIONS: 2, 3 &5.
190V A SOURCE
190V B SOURCE
190V C SOURCE
140V SOURCE
COLOR DOT L6 &L9 THRU L11 TERMINAL GUIDE
COLOR DOT L12 TERMINAL GUIDE
LOUDNESS 15K
BALANCE 15K
RMS-2
REMOTE CONTROL CIRCUIT

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	.1Ω	0Ω	0Ω	.1Ω	†7800Ω	†8800Ω	68Ω	FIL	FIL
V2	12AT7	•12K	22K	0Ω	.1Ω	.1Ω	†12K	3.3meg	0Ω	0Ω
V3	6AV6	0Ω ■ INF	1200Ω	0Ω	.1Ω	0Ω	0Ω	†2100Ω	FIL	FIL
V4	6BE6	22K	.1Ω	.1Ω	0Ω	•†12K	•†12K	.27meg	FIL	FIL
V5	6BA6	2.7meg	0Ω	.1Ω	0Ω	†10K	†10K	68Ω	FIL	FIL
V6	6AU6	520K	0Ω	.1Ω	0Ω	†20K	†20K	0Ω	FIL	FIL
V7	7025	•430K	300Ω	3300Ω	50Ω	50Ω	†430K	300Ω	3300Ω	50Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
• MEASURED IN "AM" POSITION.
■ MEASURED WITH "AFC" ON.
† MEASURED FROM PIN 3 OF V11.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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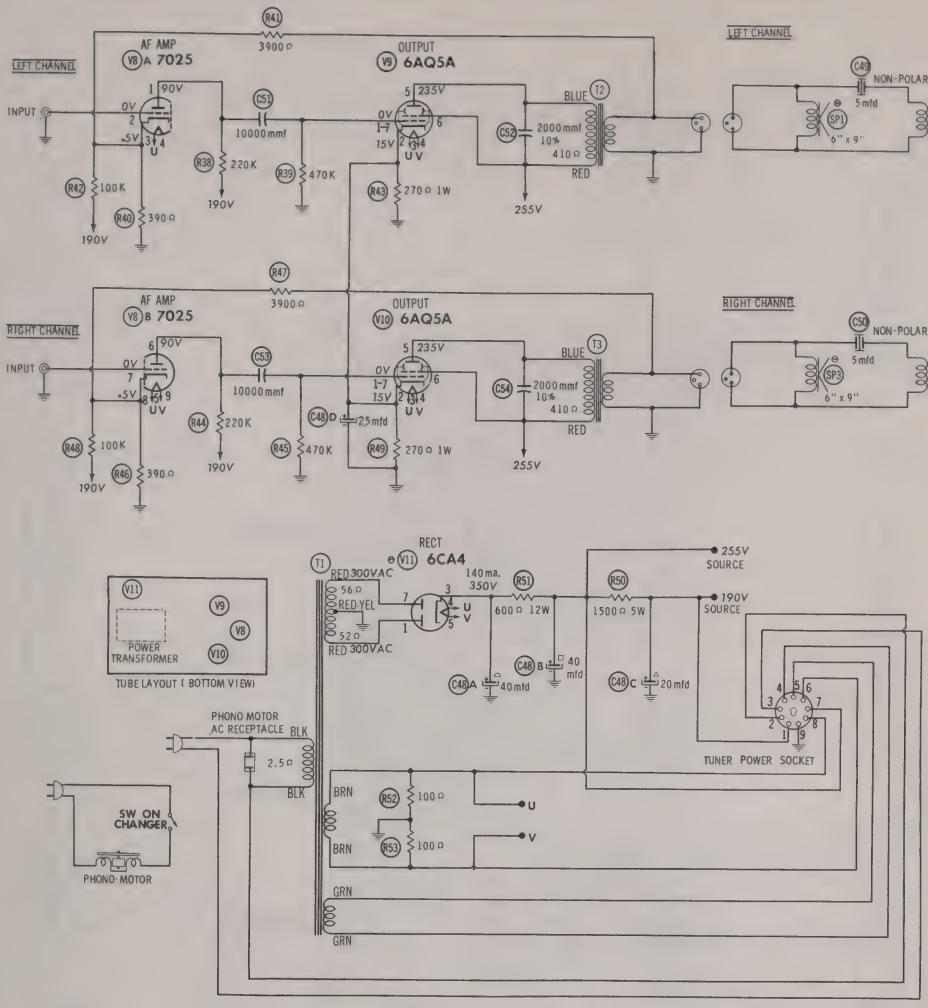
PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

7TU4 TUNER CHASSIS

SET 547 FOLDER 10 PAGE 11 PAGE 12



RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V8	7025	†220K	0Ω	390Ω	50Ω	50Ω	†220K	0Ω	390Ω	50Ω
V9	6AQ5A	470K	135Ω	50Ω	50Ω	†1000Ω	†600Ω	470K	FIL	FIL
V10	6AQ5A	470K	135Ω	50Ω	50Ω	†1000Ω	†600Ω	470K	FIL	FIL
V11	6CA4	52Ω	NC	¶35K	50Ω	50Ω	NC	56Ω	NC	NC

† MEASURED FROM PIN 3 OF V11. NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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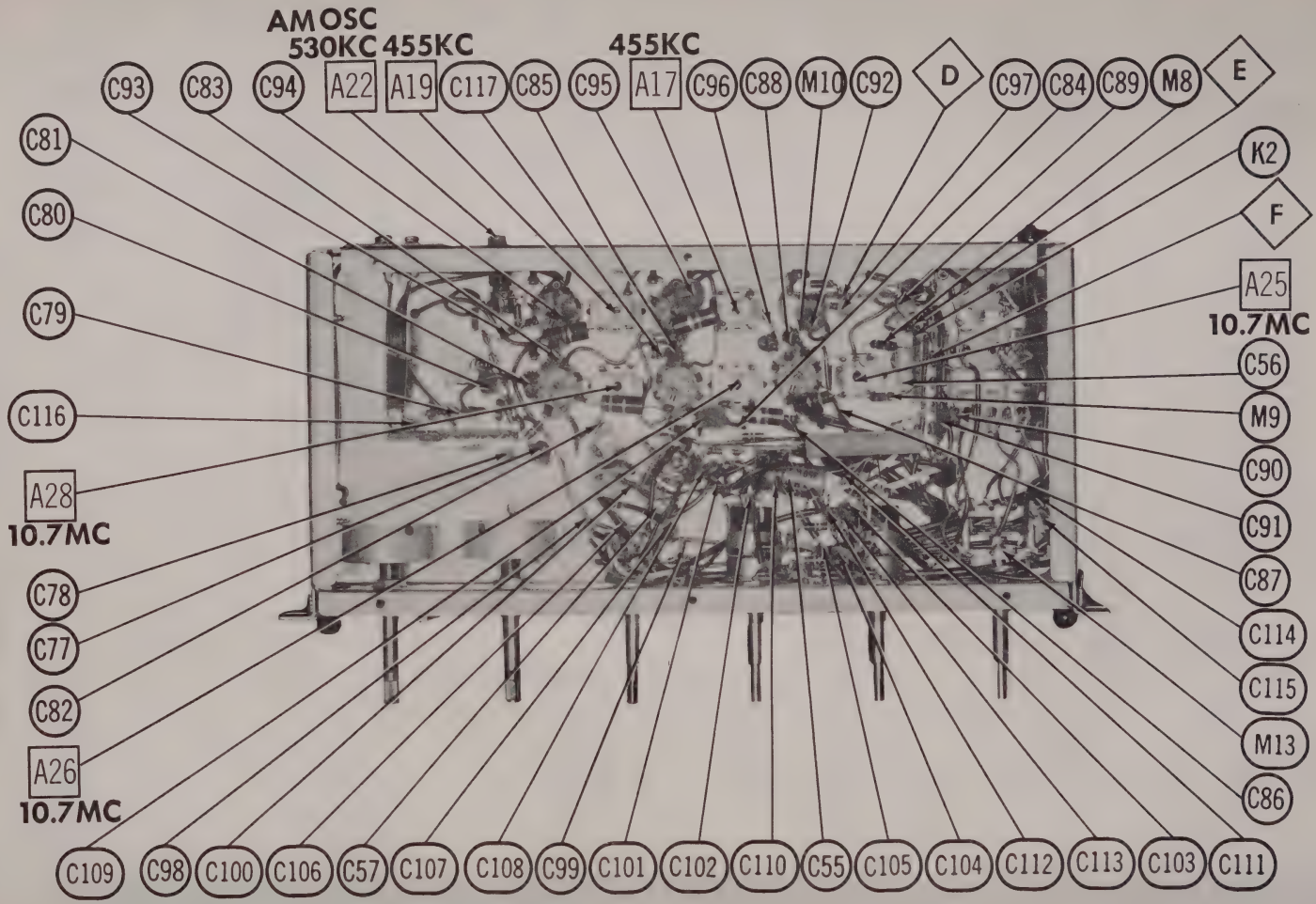
PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

DPA-10 POWER CHASSIS SCHEMATIC



8TU3 TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.

8TU3 TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V12	FM RF Amp. -FM Conv.	ECC85 (6AQ8) *
V13	1st FM IF Amplifier	6BA6
V14	2nd FM IF Amplifier	6AU6
V15	FM Limiter	6AU6
V16	AM Converter	6BE6
V17	AM IF Amplifier	6BA6
V18	Tuning Indicator	6E5
V19	Left Channel AF Amp. - Right Channel AF Amp.	12AX7A (7025) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C55	2	350	24165	PRS1705	BR245	TC595	TD-2-350	TVA-1701	
C56	5	50	24164	PTT-50005	NLW5-50	TT50X5	MLV5-50	TE-1303	
C57	40	10	24151C	PTT-10040	NLW40-10	TT15X40	MLV40-12	TE-1119	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C58	5.6 N750							
C59	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C60	3-8							
C61	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C62	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C63	36 N150 5%					*		10TCP-Q39
C64	4-20							
C65	36 N150 5%					*		10TCP-Q39
C66	10 N150 2%					*		
C67	10 N150 2%					*		
C68	3-8							
C69	1 P100					*		
C70	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C71	12 N150 2.5%					*		
C72	100 N750		N750-S1 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C73	12 N150 2.5%					*		
C74	15 N150 20%					*		
C75	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C76	2000	(1000) †	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C77	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C78	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C79	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C80	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C81	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C82	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C83	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C84	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C85	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C86	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C87	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C88	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C89	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C90	1000		BPD-001	DD-102	BYA10D2	CCD-102	B-210	5HK-D10
C91	50000		BPD-05	DD-503	H-05S5	iDP-2-503	GP150	5HK-S50
C92	50000		BPD-05	DD-503	H-05S5	iDP-2-503	GP150	5HK-S50
C93	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C94	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C95	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C96	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C97	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C98	27 NPO 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C99	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C100	50000	Note 1	BPD-05	DD-503	CUB6S5	iDP-2-503	GP150	5HK-S50
C101	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C102	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C103	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C104	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C105	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C106	27 NPO		NPO-DI 27	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C107	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C108	50000	Note 1	BPD-05	DD-503	CUB6S5	iDP-2-503	GP150	5HK-S50
C109	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C110	220		DI-221	DD-221	L10T22	CCD-221	B-322	10TS-T22
C111	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C112	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C113	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C114	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C115	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C116	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C117	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value.
Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Packard Bell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R54A	1meg	½	25087			†QJ-1537R	■ UE4216	Loudness, Left Channel
	150K Tap							
B	1meg	½						Balance, Right Channel
	150K Tap							
R55A	1meg	½	25538A				▲ UE4217-S	Treble, Left Channel
B	1meg	½						Treble, Right Channel
C	Switch							Push-Pull AFC
R56A	1meg	½	25538A				▲ UE4217-S	Bass, Left Channel
B	1meg	½						Bass, Right Channel
C	Switch							Push-Pull Power Off-On

† "CONCENTRIKIT" Equivalent: K-4 Kit with Base Elements and Shafts: B18-137X, P10-110 (Panel)
(Not available as a factory assembled unit). B18-137X, R1-130 (Rear)

■ "STA-LOC" Equivalent: FB16T15, RU16T15, OS1312, IS1937.
▲ "STA-LOC" Equivalent: FC16L, RUP16L, OS1312.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R57	22K			
R58	1000Ω			
R59	220K			
R60	1meg			
R61	6800Ω			
R62	1800Ω			
R63	22K			
R64	100K			
R65	1meg			
R66	100K			
R67	5600Ω 2W			
R68	100Ω			
R69	10K 2W			
R70	100Ω			Note 1
R71	100K			
R72	56K 1W			
R73	100Ω			
R74	4.7meg			
R75	2.2meg			
R76	10K 2W			
R77	22K			
R78	68Ω			
R79	10K 2W			
R80	100Ω			
R81	47K			
R82	470K			
R83	2.2meg			
R84	1meg			
R85	33K			
R86	180K			
R87	1meg			Note 2
R88	220K			
R89	3300Ω			
R90	220K			
R91	100K			
R92	22K			
R93	33K			
R94	180K			
R95	1meg			Note 2
R96	220K			
R97	100K			
R98	3300Ω			
R99	100K			
R100	220K			
R101	22K			
R102	10K 5W	PW5-10K	5W-8Q-10K	

Note 1. Some versions may use 68Ω shunted by 10000mmf in this application.
Note 2. Not used in some versions.

PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

8TU3 TUNER PARTS LIST (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Packard Bell PART No.	REPLACEMENT DATA
K2	Ratio Detector Network	300mmf, 300mmf, 300mmf, 1000mmf, 68Ω, 1000Ω, 1500Ω, 6800Ω, 6800Ω, 68K	23627A	Aerovox PA-694 Centralab PC-342 Sprague C-12

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Packard Bell PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L13	2nd FM IF	29164 ①	FM-254	1463	RTC-8599	T633	① Alt. Part #29148
L14	3rd FM IF	29167 ②	FM-254	1463	RTC-8599	T633	② Alt. Part #29152
L15	Ratio Detector	29084	FM-255	1465	RTC-8600	T635	
L16	Loopstick	29364	BC-419	705-A		T532	
L17	AM Osc. Coil	29247B	BC-393	71-OSC	RTC-8648	T510	
L18	1st AM IF	29077	BC-352	12-C1	RTC-8632	T607	
L19	2nd AM IF	29078	BC-353	12-C2	RTC-8633	T608	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Packard Bell PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M7						AFC (Part of FM Tuner)
M8	1N541	72027		1N295	1N295	Ratio Det. Matched Pair
M9	1N541	72027		1N295	1N295	
M10	1N295	72080		1N295	1N295	AM Detector

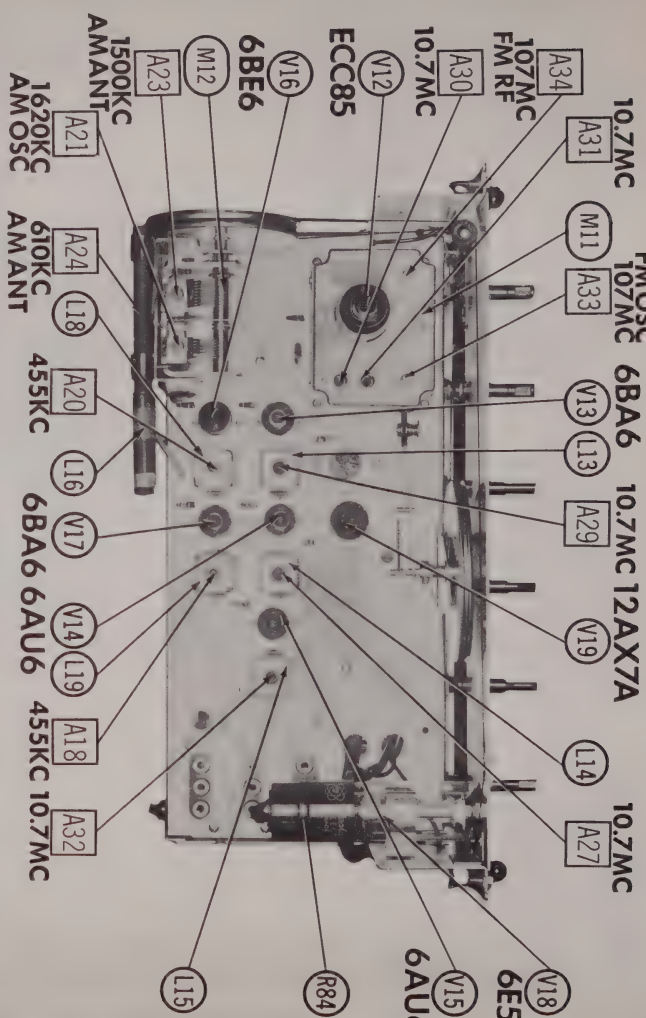
MISCELLANEOUS

ITEM No.	PART NAME	Packard Bell PART No.	NOTES
M11	FM Tuner	10673 (or)	Complete
	FM Tuner	10666	Complete
M12	Tuning Cap.	23564	AM, 2 Gang (Ant. 24–324mmf, Osc. 14–120mmf)
M13	Switch	86087A	Function Selector (Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

8TU3 TUNER CHASSIS—TOP VIEW



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A17 thru A20	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532
A21, A23	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A22, A25 thru A29, A32	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A30, A31	GENERAL CEMENT #9440
A33, A34	GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089 WALSCO #2512, 2525, 2528

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ 30% AM)	(AM) Tuning gang fully open.	DC probe to point (D). Common to chassis.	A17, A18, A19, A20	Adjust for maximum deflection.
2.	Loop	1620KC	"	"	A21	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	530KC	Tuning gang fully closed.	"	A22	"
4.	"	1500KC	1500KC Signal.	"	A23	"
5.	"	610KC	610KC Signal.	"	A24	Adjust for maximum deflection. Repeat Steps 2, 3, 4 and 5.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (E). Common to chassis.	A25, A26, A27, A28, A29, A30, A31	Adjust for maximum deflection.
7.	"	"	"	DC probe to point (F). Common to chassis.	A32	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE – SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	Across FM antenna terminals.	10.7MC (450KC Swp.)	(FM) Point of non-interference.	Vert. amp. to point (E). Low side to chassis.	A25, A26, A27, A28, A29, A30, A31	Disconnect Stabilizing Capacitor C56. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C56.
7.	"	"	"	Vert. amp. to point (F). Low side to chassis.	A32	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A25 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals with 150Ω in each lead.	107MC (Unmod.)	(FM) 107MC	DC probe to point (E). Common to chassis.	A33, A34	Adjust for maximum deflection.
9.	"	89MC	89MC	"	Idler Adjustment screw	Adjust for maximum deflection. Repeat Steps 8 and 9.

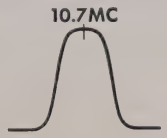


FIG. 1

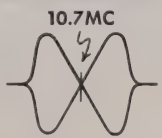
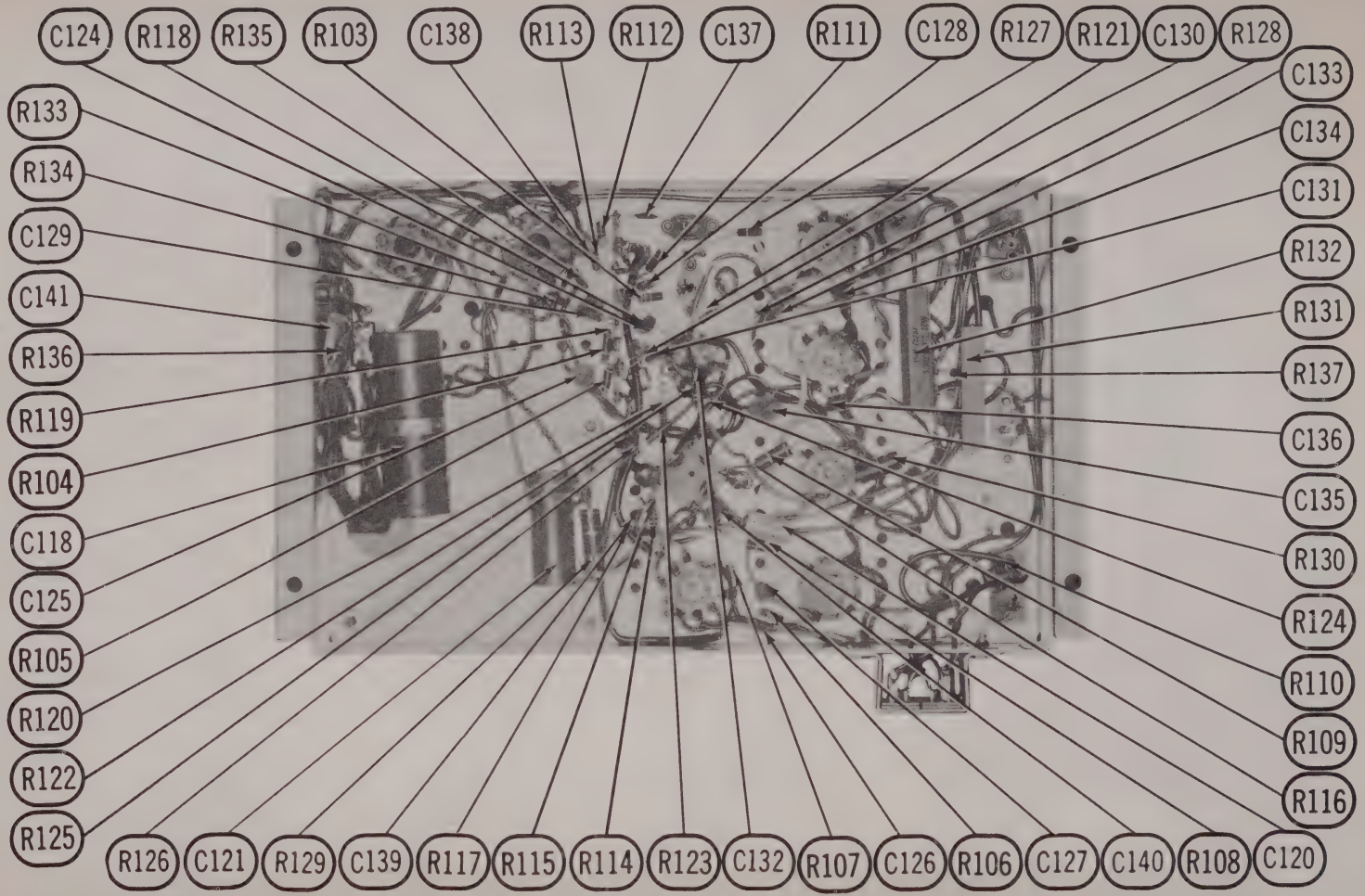
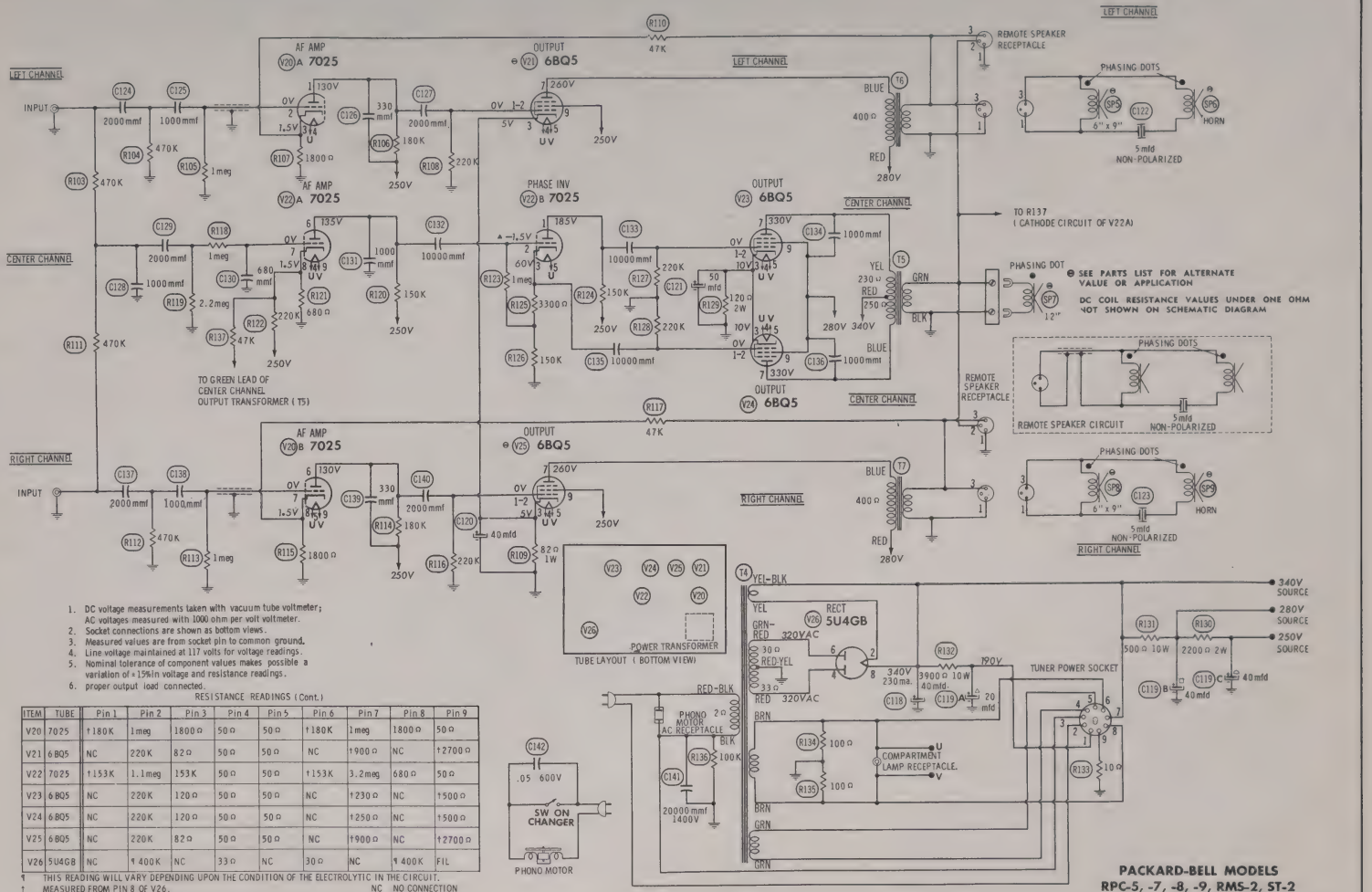


FIG. 2



TPA-50 POWER CHASSIS-BOTTOM VIEW



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. proper output load connected.

RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V20	7025	†180K	1meg	1800Ω	50Ω	50Ω	†180K	1meg	1800Ω	50Ω
V21	6BQ5	NC	220K	82Ω	50Ω	50Ω	NC	†900Ω	NC	†2700Ω
V22	7025	†153K	1.1meg	153K	50Ω	50Ω	†153K	3.2meg	680Ω	50Ω
V23	6BQ5	NC	220K	120Ω	50Ω	50Ω	NC	†230Ω	NC	†500Ω
V24	6BQ5	NC	220K	120Ω	50Ω	50Ω	NC	†250Ω	NC	†500Ω
V25	6BQ5	NC	220K	82Ω	50Ω	50Ω	NC	†900Ω	NC	†2700Ω
V26	5U4GB	NC	¶ 400K	NC	33Ω	NC	30Ω	NC	¶ 400K	FIL

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V26. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

TPA-50 POWER CHASSIS SCHEMATIC

PACKARD-BELL MODELS
RPC-5, -7, -8, -9, RMS-2, ST-2
(Ch. DPA-10, TPA-50, 7TU-4, 8TU-3)

TPA—50 POWER CHASSIS PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V20	Left Channel AF Amp. - Right Channel AF Amp.	7025
V21	Left Channel Output	6BQ5 (EL84) *
V22	Center Channel AF Amp. - Center Channel Phase Inv.	7025
V23	Center Channel Output	6BQ5
V24	Center Channel Output	6BQ5
V25	Right Channel Output	6BQ5 (EL84) *
V26	Rectifier	5U4GB

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C118	40	450	24143	PRS1750	BR4045	TC78	TD-40-450	TVA-1712	
C119A	▲20	450	24147	AFH3-43-50	C0344	FP376.9	TMT-3745	TVL-3786	
B	▲40	450							
C	▲40	450							
C120	40	10	24151	PTT-10040	NLW40-10	TT15X40	MLV40-12	TE-1119	
C121	50	25	24199	PRS1265	BBR50-25	TC29	MLV50-25	TE-1209	
C122	5	25NP	24146	PRS7405	BBR4-150	TCN504		TVANS-1303.1*	
C123	5	25NP	24146	PRS7405	BBR4-150	TCN504		TVANS-1303.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	EMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C124	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C125	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C126	330		DI-330	DD-331	LL0T33	CCD-331	B-333	10TS-T33
C127	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C128	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C129	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C130	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C131	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C132	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C133	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C134	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C135	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C136	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C137	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C138	1000		BPD-001	DD-102	BYA10D2	CCD-102	B-210	5HK-D10
C139	330		DI-330	DD-331	LL0T33	CCD-331	B-333	10TS-T33
C140	2000		BPD-002	DD-202	BYA10D 2	CCD-202	B-220	5HK-D20
C141	20000 1400V				CUBI6S2	16DP-4-203	UAC-120	MB-S2
C142	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R103	470K			
R104	470K			
R105	1meg			
R106	180K			
R107	1800Ω			
R108	220K			
R109	82Ω 1W			
R110	47K			
R111	470K			
R112	470K			
R113	1meg			
R114	180K			
R115	1800Ω			
R116	220K			
R117	47K			
R118	1meg			
R119	2.2meg			
R120	150K			
R121	680Ω			
R122	220K			
R123	1meg			
R124	150K			
R125	3300Ω			
R126	150K			
R127	220K			
R128	220K			
R129	120Ω 2W			
R130	2200Ω 2W			
R131	500Ω 10W	PW10-500	10W-SQ-500	
R132	3900Ω 10W	PW10-3900	10W-SQ-3900	
R133	10Ω			
R134	100Ω			
R135	100Ω			
R136	100K			
R137	47K			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Packard Bell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	117V Ⓐ 1.6A	640VCT Ⓐ .230A DC	5V Ⓐ 3A	89090A					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 4A	6.3V Ⓐ 2.4A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Packard Bell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7100Ω CT	6-8Ω	89460A	A-2901 ①	A-3870	24S14	S-55X	① Drill New Mtg. Hole(s).
T6	4000Ω	3-4Ω	89436F	A-2930	A-3877	24S05	S-41X	
T7	4000Ω	3-4Ω	89436F	A-2930	A-3877	24S05	S-41X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Packard Bell PART No.	QUAM PART No.	NOTES
SP5	6"x 9"	PM	3-4Ω	83112 *	69A2	* Used in Model RPC-9
SP6	Horn	PM	6-8Ω	83134 *		♦ Used in Model RPC-8
SP7	12"	PM	6-8Ω	83807D *♦	12A4AZ8	♠ Used in speaker enclosure ST-2
SP8	6"x 9"	PM	3-4Ω	83112 *	69A2	† Replaces SP5 and SP 8 in some versions.
SP9	Horn	PM	6-8Ω	83134 *		
	6"x 9"	PM	3-4Ω	83112B ♠ †	69A3	
	4"	PM	3-4Ω	83019A ♠	4A05	
	4"	PM	6-8Ω	83110A ♦	4A1Z6.2	
	6"x 9"	PM		83113B ♦		

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	Packard Bell PART No. CARTRIDGE	Packard Bell PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M14	63045	Not Req.	13TBX	Not Req.	26SD	S1-1 * & S3-3 *	8TA4-SD	N-8TA-SD *	Models RPC-8, RPC-9

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	38195	Models RPC-5, RPC-7, RPC-8
Dial Glass	38197	Model RPC-9
Dial Pointer	67065	(Alternate Part #67049C)
Knob	52278C	(Outside) Loudness, Bass, Treble; Models RPC-5, RPC-7, RPC-8
Knob	52308	(Inside) Balance, Bass, Treble; Models RPC-5, RPC-7, RPC-8
Knob	52284	(Outside) Tuning, Function, Dimension; Models RPC-5, RPC-7, RPC-8
Knob	52306	(Inside) Tuning, Function, Dimension; Models RPC-5, RPC-7, RPC-8
Knob	52278C	(Outside) Function, Bass, Treble, Loudness; Model RPC-9
Knob	52308	(Inside) Function, Bass, Treble, Loudness; Model RPC-9
Knob	52284	(Outside) Tuning, Model RPC-9
Knob	52306	(Inside) Tuning, Model RPC-9
Knob	52278	(Outside) Model RMS-2
Knob	14203C	(Inside) Model RMS-2

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

PHILCO MODELS J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846

PHILCO MODELS J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846

MODEL J-774

PHILCO MODELS J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846

TRADE NAME	Philco Models J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846 (All Code 124)
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	AC Operated 5 Tube AM Receiver With Electric Clock (J-800 Series Do Not Have Clocks)
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 26 Watts, .25 Amp. @ 117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 – 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4.... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

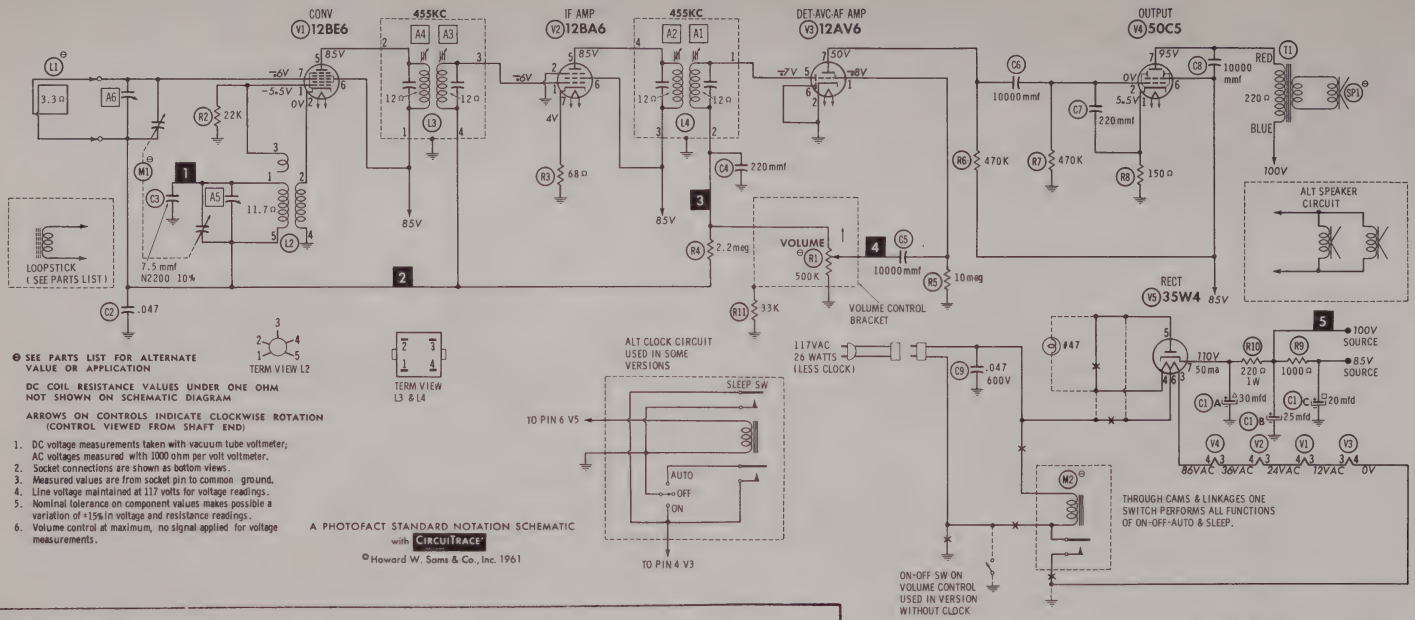
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1500KC	1500KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2 and 3.

SET 547 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG559



SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.1Ω	10Ω	20Ω	↑1200Ω	↑1200Ω	2.8meg
V2	12BA6	2.8meg	0Ω	20Ω	30Ω	↑1200Ω	↑1200Ω	68Ω
V3	12AV6	10meg	0Ω	10Ω	0Ω	500K	0Ω	↑470K
V4	50C5	150Ω	470K	30Ω	100Ω	NC	↑1200Ω	↑440Ω
V5	35W4	TP	TP	100Ω	140Ω	140Ω	135Ω	INF

↑ MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PRINTED BOARD

PHILCO MODELS J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Converter	12BE6
V2	IF Amplifier	12BA6
V3	Det. -AVC-AF Amp.	12AV6
V4	Output	50C5
V5	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	150	30-2585-11	PWH3-05-50	C0080 †	FP318.7 ♦	TMT-3124 ♣	PCL-3435.1	
B	25	150							
C	■20	150							

† Use printed circuit adapters Part #55277 & 55278.
♦ Use printed circuit adapter kit FPA.
♣ Use printed circuit adapter kit TMA.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C3	7.5 N2200 10%	#30-1224-83						
C4	220		BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	220		BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.047 600V		P688N-047	DD-473	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

Philco Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	33-5575-28①				P2-55A	Volume

① Model J-774.
Models J-769, J-775 use Part #33-5575-5.
Models J-772, J-773 use Part #33-5575-3.
Model J-838 used Part #33-5575-4 (with switch).
Model J-840 uses Part #33-5575-17 (with switch).
Models J-842, J-845 use Part #33-5575-15 (with switch).
Model J-846 uses Part #33-5575-26 (with switch).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	22K			
R3	68Ω			
R4	2.2meg			
R5	10meg			
R6	470K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	470K			
R8	150Ω			
R9	1000Ω			
R10	220Ω 1W			
R11	33K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Loop Ant.	(See Chart)					
L2	Osc.	32-4756-1				T539	
L3	Input IF	32-4583-23	BC-356	13-PC1	RTC-8641	T646	
L4	Output IF	32-4583-23	BC-357	13-PC2	RTC-8642	T647	

ANTENNA

MODEL	PART NO.	MODEL	PART NO.
J-769	76-10493-4	J-838	32-4692-8
J-772	32-4795-1	J-840	76-10521-3
J-773	32-4692-12	J-842	32-4757
J-774	32-4795-2	J-845	32-4795-1
J-775	32-4692-8	J-846	32-4692-13

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω	32-8384-2	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	36-1675-18 *	4A05	* Model J-774. Alternate Part #36-1675-11.
	4"	PM	3-4Ω	36-1675-11 ♣		♣ Models J-769, J-772, J-773, J-840, J-842, J-845, J-846
	4"	PM	3-4Ω	36-1671-7 ♦		♦ Models J-775, J-838

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	Tuning Cap.	31-2783-15	2 Gang, Models J-774, J-769
	Tuning Cap.	31-2790-12	2 Gang, Model J-772
	Tuning Cap.	31-2790-14	2 Gang, Models J-773, J-846
	Tuning Cap.	31-2790-6	2 Gang, Models J-775, J-838
	Tuning Cap.	31-2783-16	2 Gang, Model J-840
	Tuning Cap.	31-2783-13	2 Gang, Models J-842, J-845
M2	Clock Assy.	41-2074-2	Model J-774
	Clock Assy.	41-2068	Model J-769
	Clock Assy.	41-2070	Model J-772
	Clock Assy.	41-2079-1	Model J-773
	Clock Assy.	41-2074-4	Model J-775
	Printed Board	54-5757-2	Models J-769, J-774, J-772, J-773
	Printed Board	54-5757-5	Model J-775
	Printed Board	54-5757-4	Model J-838
	Printed Board	54-5757-1	Model J-840, J-842, J-845, J-846

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

PHILCO MODELS J-769, J-772, J-773, J-774, J-775, J-838, J-840, J-842, J-845, J-846

FOLDER 11

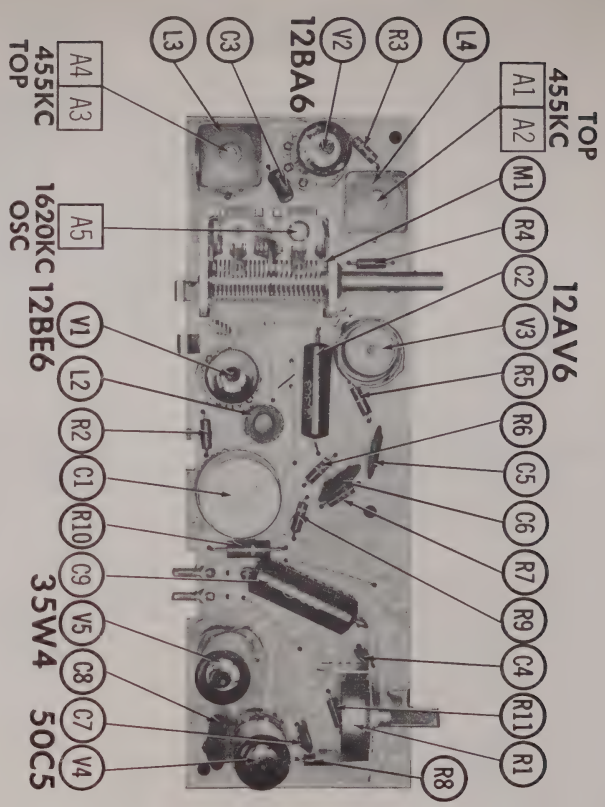
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

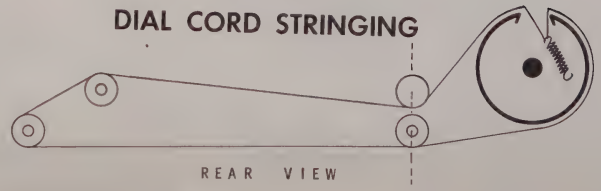
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Crystal	54-6623-7	Clock, Model J-769
Crystal	54-6428-1	Clock, Model J-772
Crystal	54-6090-3	Clock, Model J-773
Crystal	54-6428-2	Clock, Model J-774
Crystal	54-5473-1	Clock, Model J-775
Dial	54-5801-1	Clock & Radio, Model J-769
Dial	54-5787-1	Clock & Radio, Model J-772
Dial	54-5830-1	Clock & Radio, Model J-774
Dial	28-13584-1	Model J-775
Dial	54-5802-1	Model J-840
Dial	54-5825-1	Model J-842
Dial	28-13411-2	Time Indicator, Model J-775
Dial	28-13411-1	Time Indicator, Model J-774
Knob	54-6436-2	Clock, Model J-769
Knob	54-6436-1	Clock, Models J-772, J-773
Knob	424-8147	Tuning, Model J-769
Knob	424-8117	Tuning, Model J-772
Knob	424-8132	Tuning, Model J-773
Knob	28-11588-6	Tuning, Model J-774
Knob	54-5471-4	Tuning, Models J-775, J-838
Knob	424-8125	Tuning, Model J-840
Knob	424-8123	Tuning, Model J-842
Knob	424-8119	Tuning, Model J-845
Knob	28-11588-1	Tuning, Model J-846 & Volume
Knob	424-8137	Tuning, Model J-846
Knob	424-8146	Volume, Model J-769
Knob	424-8110	Volume, Model J-772
Knob	424-8131	Volume, Model J-773
Knob	28-11588-6	Volume, Model J-774
Knob	54-5471-3	Volume, Models J-775, J-838
Knob	424-8122	Volume, Models J-840, J-842
Knob	424-8120	Volume, Model J-845
Knob	54-6083-3	Dial, Models J-775, J-838
Knob	28-13028	Time Set, Models J-773, J-775
Knob	54-5817-1	"40 Winks", Grey, Model J-773
Knob	54-5817-3	"40 Winks", Mocha, Model J-773
Pushbutton	54-5540-1	Clock, Models J-774, J-775
Cabinet	424-8130	Model J-769
Cabinet	54-5763-2	Back, Turquoise, Model J-772
Cabinet	54-5763-3	Back, Beige, Model J-772
Cabinet	54-5763-4	Back, Pink, Model J-772
Cabinet	424-8116	Front, Pink & Turquoise, Model J-772
Cabinet	424-8150	Front, Beige, Model J-772
Cabinet	424-8151	Front, Mocha, Model J-773
Cabinet	424-8133	Front, Grey, Model J-773
Cabinet	54-5816-3	Back, Mocha, Model J-773
Cabinet	54-5816-1	Back, Grey, Model J-773
Cabinet	54-5813-3	Back, Turquoise, Model J-774
Cabinet	54-5813-4	Back, Beige, Model J-774
Cabinet	424-8134	Front, Turquoise, Model J-774
Cabinet	424-8152	Front, Beige, Model J-774
Cabinet	424-8124	Beige, Model J-775
Cabinet	424-8153	Ivory, Model J-775
Cabinet	424-8157	Ivory, Model J-838
Cabinet	424-8143	Beige, Model J-838
Cabinet	424-8127	Ivory, Model J-840
Cabinet	424-8141	Mahogany, Model J-840
Cabinet	54-6605-5	Back, Beige, Model J-842
Cabinet	54-6605-4	Back, Ivory, Model J-842
Cabinet	424-8140	Front, Beige, Model J-842
Cabinet	424-8121	Front, Ivory, Model J-842
Cabinet	421-8142	Front, Aqua, Model J-845
Cabinet	424-8154	Front, Mocha,Model J-845
Cabinet	54-5763-3	Back, Aqua, Model J-845
Cabinet	54-5763-5	Back, Mocha, Model J-845
Cabinet	54-5816-2	Back, Pink & Terra cotta, Model J-846
Cabinet	54-5816-4	Back, Turquoise, Model J-846
Cabinet	424-8138	Front, Turquoise, Model J-846
Cabinet	424-8155	Front, Pink, Model J-846
Cabinet	424-8156	Front, Terra cotta, Model J-846

CHASSIS—TOP VIEW



DIAL CORD STRINGING



PHOTOFACT® Folder

RCA MODEL CRM-P2A-5 (MI-555518)

RCA MODEL
CRM-P2A-5 (MI-555518)

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

RCA MODEL
CRM-P2A-5 (MI-555518)

TRADE NAME	RCA Model CRM-P2A-5,-MI-555518) Radiomarine
MANUFACTURER	Radio Corp. of America, Communication Products Dept., Radiomarine Marketing, Camden, N. J.
TYPE SET	AC-Battery Operated 5 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	30 Watts, .30 Amp. @117 Volts AC (Receiver); 37 Watts, .37 Amp. @117 Volts AC (Transmit) or 3.8 Amp. @6.3 Volts DC (Receive); 4.3 Amp. @6.3 Volts DC (Transmit) or 7.6 Amp. @12.6 Volts DC (Receive); 9.6 Amp. @12.6 Volts DC (Transmit)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22

ALIGNMENT INSTRUCTIONS

RECEIVER

Grid circuit tuning of the RF amplifier is automatically accomplished by the normal alignment for the transmitter. The receiver is tuned for the best signal-to-noise ratio on a weak modulated signal on the proper operating frequency by adjusting A6. This adjustment may be made without removing the unit from the case.

The lead length of screen bypass capacitor C8 is critical as it determines the neutralization of V1, and thus the amount of signal coupled from the superregenerative detector to the antenna circuit. If this capacitor is replaced, another of the same value and type should be used, with the same lead lengths.

In addition to the increased radiation that occurs when this tube is not neutralized, the receiver will oscillate. Oscillation will also occur if the relay does not short the crystal in the receiver position.

When squelch control is incorporated in receiver, turn to maximum clockwise position.

TRANSMITTER

Connect DC probe of VTVM through 100K resistor to point Ⓐ, low side to chassis. With the antenna disconnected, adjust A1 for maximum deflection.

Adjust A2 for minimum plate current.

Adjust A3 for maximum plate current, with antenna in place.

Adjust A4 to approximately 3/4 of maximum capacity.

The voltage variation at point Ⓐ should be noted when A2 is tuned through resonance. Adjust A5 for minimum variation in grid voltage with the tuning of A2. When properly neutralized, this variation should not cause the grid voltage to be less than -5 volts.

Do not readjust A2 with the antenna in place or an external antenna connected.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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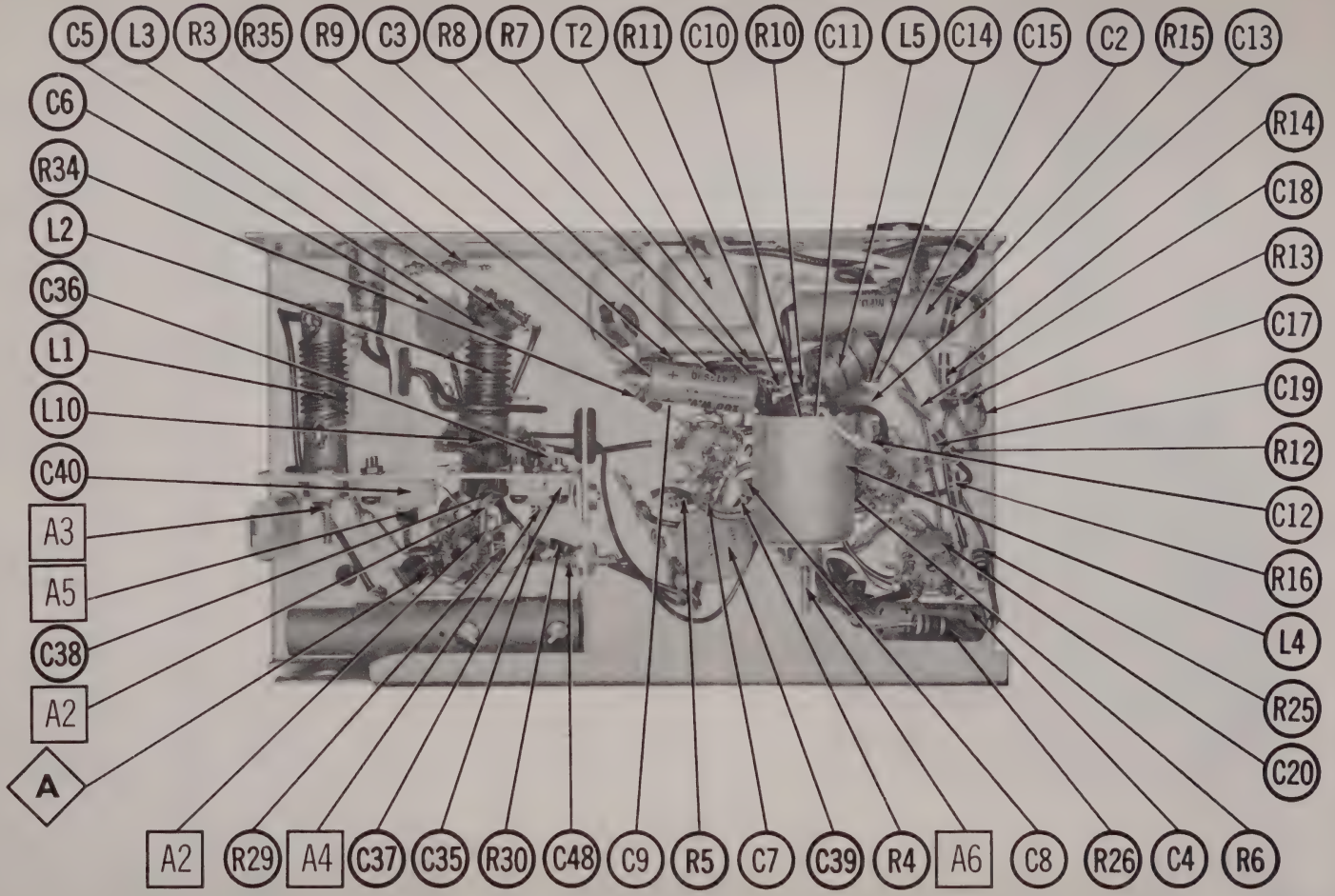
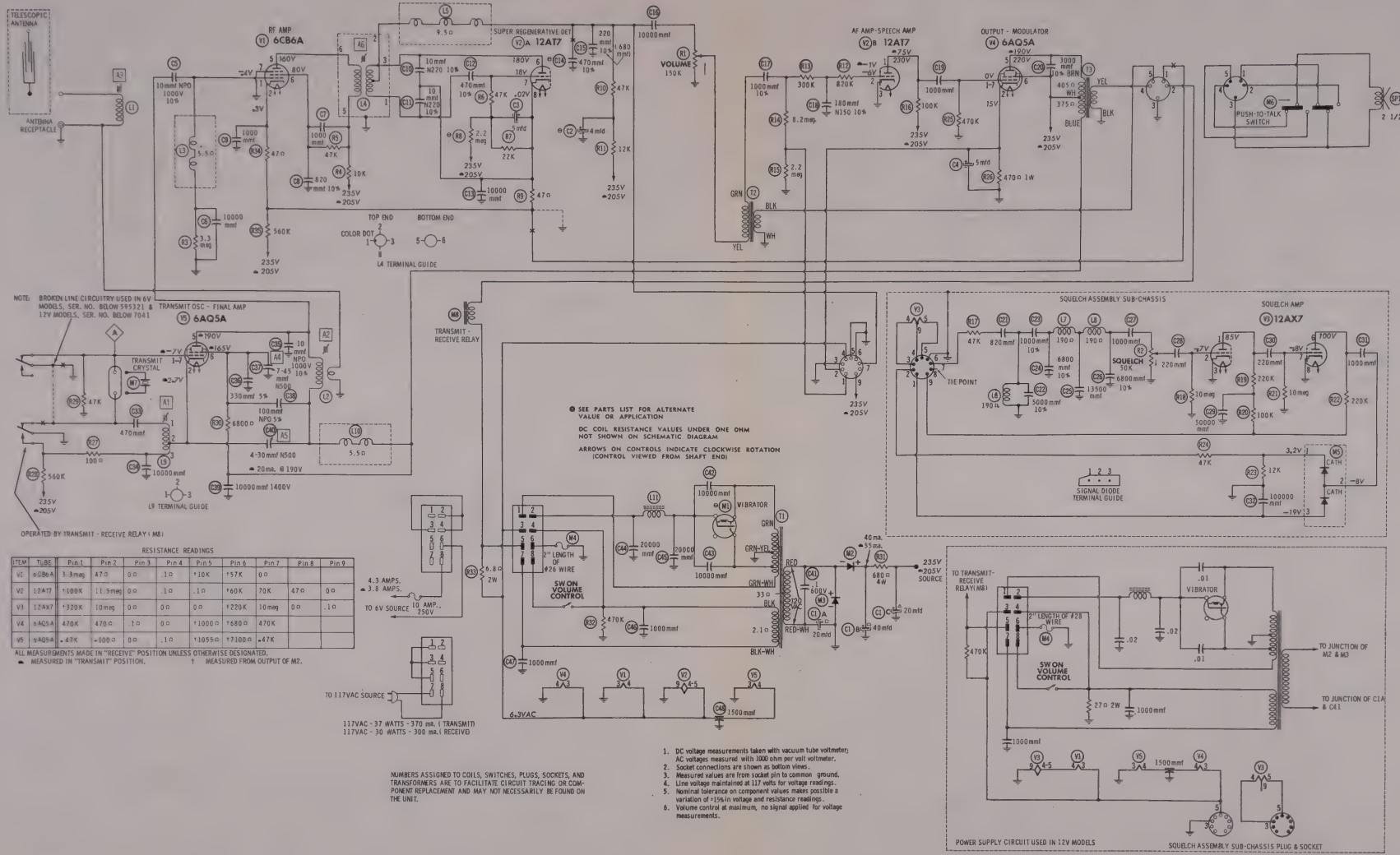
KZ547

SET 547 FOLDER 12



CHASSIS-BOTTOM VIEW


TELESCOPIC ANTENNA
ANTENNA RECEPTACLE
RF AMP V1 6CB6A
SUPER REGENERATIVE DET V2A 12AT7
AF AMP-SPEECH AMP V2B 12AT7
OUTPUT - MODULATOR V4 6AQ5A
VOLUME 150K
PUSH-TO-TALK SWITCH
2 1/2"
TOP END
BOTTOM END
COLOR DOT
L4 TERMINAL GUIDE
NOTE: BROKEN LINE CIRCUITRY USED IN 6V MODELS, SER. NO. BELOW 595321 & TRANSMIT OSC - FINAL AMP
12V MODELS, SER. NO. BELOW 7041
V5 6AQ5A
TRANSMIT CRYSTAL
4-30 mmf N500
20 ma. @ 190V
L9 TERMINAL GUIDE
OPERATED BY TRANSMIT - RECEIVE RELAY (K1)
TRANSMIT - RECEIVE RELAY
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
SW ON VOLUME CONTROL
2" LENGTH OF #26 WIRE
VIBRATOR
4.3 AMPS.
3.8 AMPS.
TO 6V SOURCE
10 AMP., 250V
TO 117VAC SOURCE
117VAC - 37 WATTS - 370 ma. (TRANSMIT)
117VAC - 30 WATTS - 300 ma. (RECEIVE)
6.3VAC
235V 205V SOURCE
SQUELCH ASSEMBLY SUB-CHASSIS
SQUELCH AMP V3 12AX7
TIE POINT
SQUELCH 50K
SIGNAL DIODE TERMINAL GUIDE
TO TRANSMIT-RECEIVE RELAY (K1)
TO JUNCTION OF M2 & M3
TO JUNCTION OF C1A & C41
POWER SUPPLY CIRCUIT USED IN 12V MODELS
SQUELCH ASSEMBLY SUB-CHASSIS PLUG & SOCKET

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	3.3meg	47Ω	0Ω	.1Ω	†10K	†57K	0Ω		
V2	12AT7	†100K	11.5meg	0Ω	.1Ω	.1Ω	†60K	70K	47Ω	0Ω
V3	12AX7	†320K	10meg	0Ω	0Ω	0Ω	†220K	10meg	0Ω	.1Ω
V4	6AQ5A	470K	470Ω	.1Ω	0Ω	†1000Ω	†680Ω	470K		
V5	6AQ5A	.47K	~100Ω	0Ω	.1Ω	†1055Ω	†7100Ω	.47K		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION. † MEASURED FROM OUTPUT OF M2.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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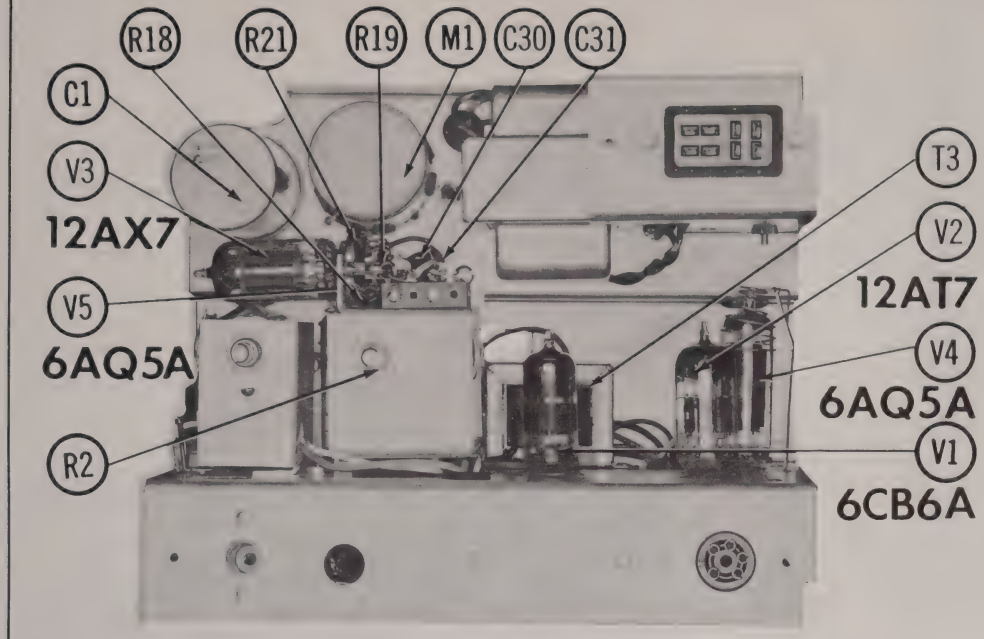
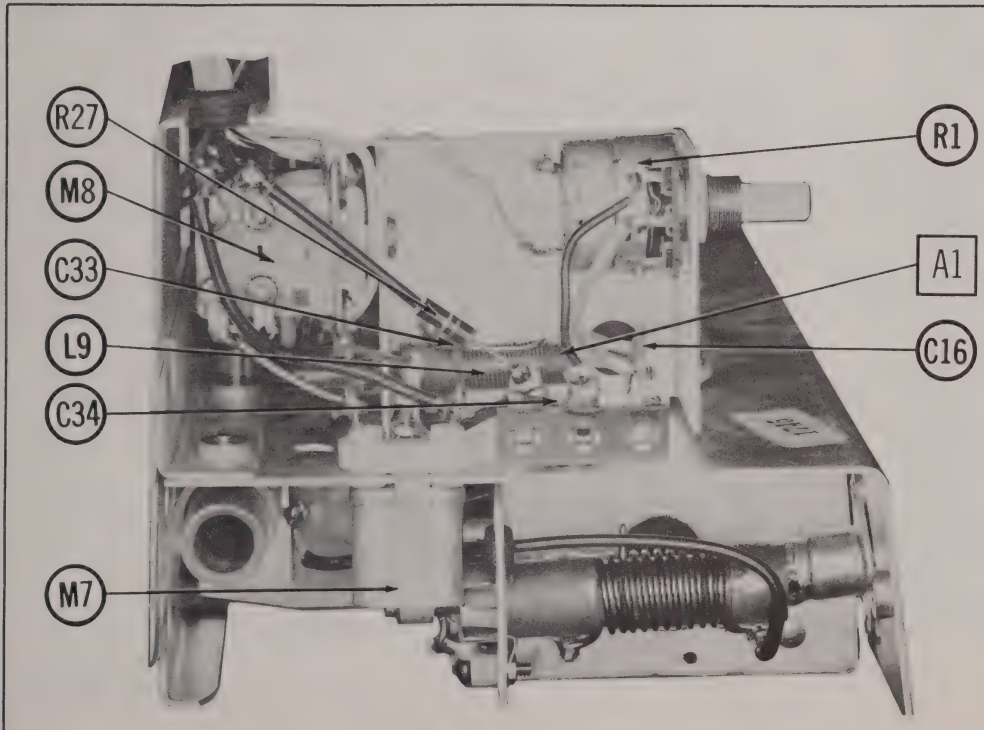
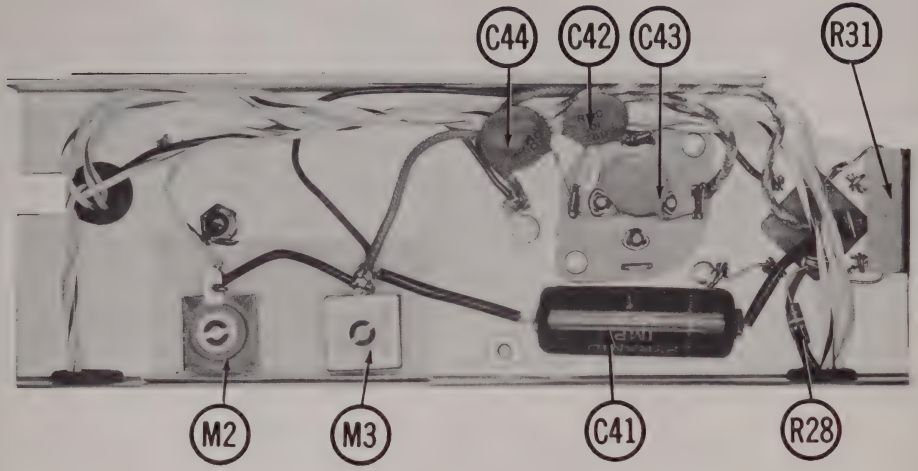
RCA MODEL CRM-P2A-5 (MI-555518)



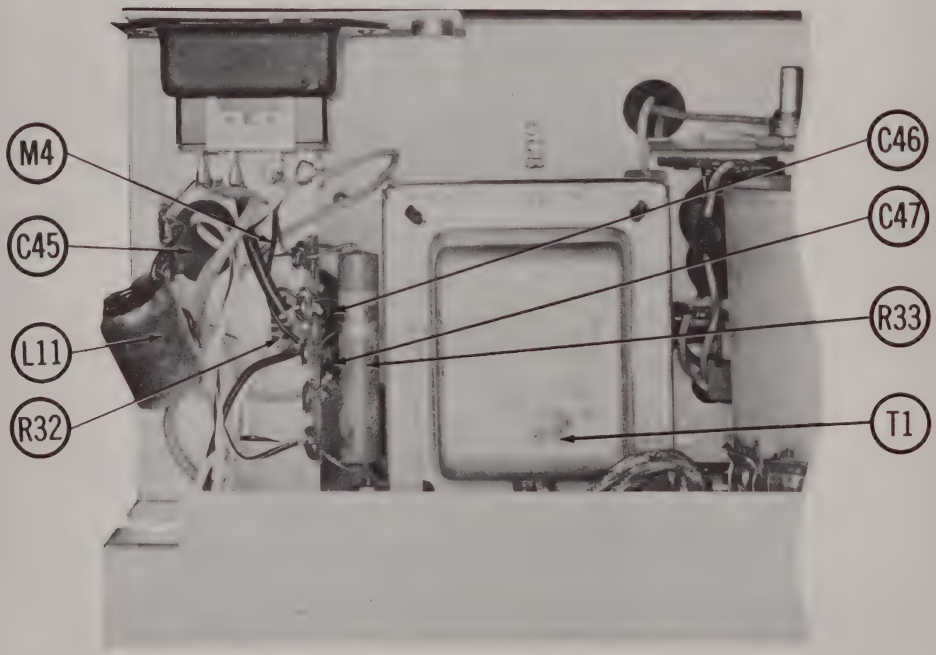
CHASSIS-TOP VIEW



TRANSMITTER SECTION



VIBRATOR CHASSIS-BOTTOM VIEW



POWER SECTION

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6CB6A	V3	Squelch Amp.	12AX7
V2	Superregen. Det. - AF Amp. -Speech Amp.	12AT7	V4	Output-Modulator	6AQ5A
			V5	Trans. Osc. -Final Amp.	6AQ5A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■20	350		AFH4-04	C0150	FP420, 35	TMD-2640	TVL-3724, 4	
B	▲40	350					TD-40-350		
C	▲20	350							
C2	4	350		PRS1600	BR435	TC697	TD-4-450	TVA-1601	①
C3	5	100		5RE150V5	BBR4-150	TC40	TD-4-150	TVA-1403	
C4	5	25		PRS1310	BBR5-50	TC30	TD-5-25	TVA-1203	

① Some versions may use 5mfd in this application.

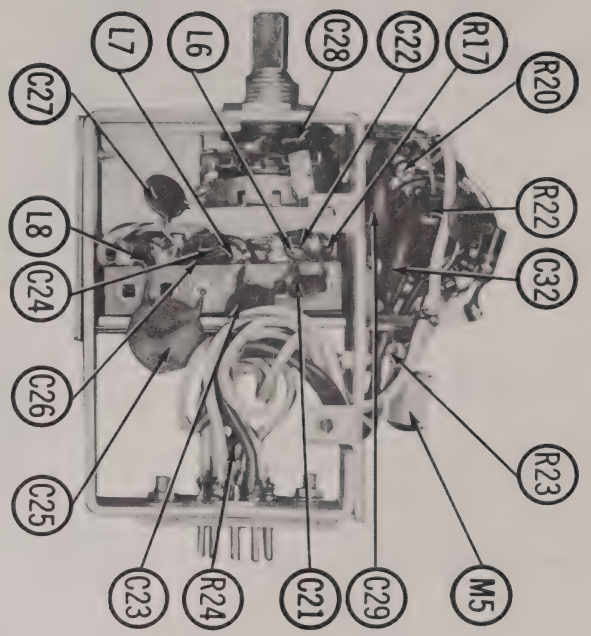
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 1000V NPO 10%				C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-120	5HK-D10
C8	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C9	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	10 N220 10%					*		10TCR-Q10
C11	10 N220 10%					*		10TCR-Q10
C12	470 10%		DI-470	DD-471	5R5T47	CCD-221	GP347	10TS-T47
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	470 10%	Note 1	DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C15	220 10%	(680) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C18	180 N150 10%					*		
C19	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	3000 10%		DI-3000		PM6D3	CCD-302	JL-233	10TS-D30
C21	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C22	5000 10%		DI-5000		1R5D5	CCD-502	JL-250	10TS-D50
C23	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C24	6800 10%		DI-6800		1DR5D68	CCD-682		10TS-D68
C25	13500 25%		DI-10000			CCD-103		10TS-S10
C26	6800 10%		DI-6800		1DR5D68	CCD-682		10TS-D68
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C29	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S5
C30	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C31	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	100000 75V			DDA-104	H-05P1	1DP-2-104	TA-010	TG-P10
C33	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10 1000V NPO 10%				C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C36	330 5%		1469-00033		22R5T33	CM-19B-331J		
C37	7-45 N500						ST-557-N	
C38	100 NPO 5%		NPO-DI 100	DTZ-100	C10T1C	CCTO-101	CNO-310	10TCC-T10
C39	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C40	4-30 N500						ST-554-N	
C41	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-611	6TM-P10
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C45	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C46	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C48	1500		EF-0015			CCF-152	FC5215	

† Alternate Value.
Note 1. Not used in some versions.

SOUELCH UNIT



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	150K	½	8439890-1	B-44	A47-150K-S	Q13-128	U42	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	50K	½	B-1802	B-31	A47-50K-S	Q11-123	U35	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	3.3meg			
R4	10K			
R5	47K			
R6	47K			
R7	22K			
R8	2.2meg			Note 1
R9	47Ω			
R10	47K			
R11	12K			
R12	820K			
R13	300K			
R14	8.2meg			
R15	2.2meg			
R16	100K			
R17	47K			
R18	10meg			
R19	220K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R20	100K			
R21	10meg			
R22	220K			
R23	12K			
R24	47K			
R25	470K			
R26	470Ω 1W			
R27	100Ω			
R28	560K			
R29	47K			
R30	6800Ω			
R31	680Ω 4W			
R32	470K			
R33	6.8Ω 2W			
R34	47Ω			
R35	560K			

Note 1. 12 volt versions below serial #7041 and 6 volt versions below serial #595321 use 1meg.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Ant. Loading						
L2	Ant.						
L3	RF Choke (100uh)		TV-194	6112	RTC-8574	T305	
L4	Detector						
L5	RF Choke (1MH)		BC-513	4652	RTC-8532	T873	
L6	RF Choke (60MH)		BC-511	693		T948	
L7	RF Choke (60MH)		BC-511	693		T948	
L8	RF Choke (60MH)		BC-511	693		T948	
L9	Oscillator						
L10	RF Choke (100uh)		TV-194	6112	RTC-8574	T305	
L11	Hash Choke (27uh)		BC-537	5220	RTC-9182	T980	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .37A (AC only) 6.3VCT @ 2.5A	120V @ .190A AC	6.3V @ 1.8A (AC only)	C-8702756					

TRANSFORMER (MIC.)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1	25	C-8702753		A-4748			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	15K CT	3-4Ω	C-8702754	A-2900	A-3856	24S04	S-51X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA RCA PART No.	QUAM PART No.	NOTES
SP1	2½"	PM	3-4Ω	8702750-1	25A07	Used For Mic. and Speaker

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA RCA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	6.3	115v		5301	1601	5301	
	Interrupter	12.6	115v		6301	G1601	6301	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA RCA PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M2	.040A	♦	1N1763 *	65A ♦	SR200 *	♦ Selenium Type
M3	.040A	♦	1N1763 *	65A ♦	SR200 *	* Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA RCA PART No. FUSE	RCA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M4	2" Length #26 Wire							
	3AG	10A ① 250V			313010 (3AG 10A 250V)		AGC 10	
	3AG	5A ② 250V			313005 (3AG 5A 250V)		AGC 5	

① Used in 6 Volt versions.
② Used in 12 Volt versions.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA RCA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M5			6GD1			Dual Selenium

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M6	Switch		Push-to-talk (DPDT Slide Type)
M7	Crystal		Order By Desired Frequency
M8	Relay		Specify 6 or 12 Volt Unit

WIRING DATA

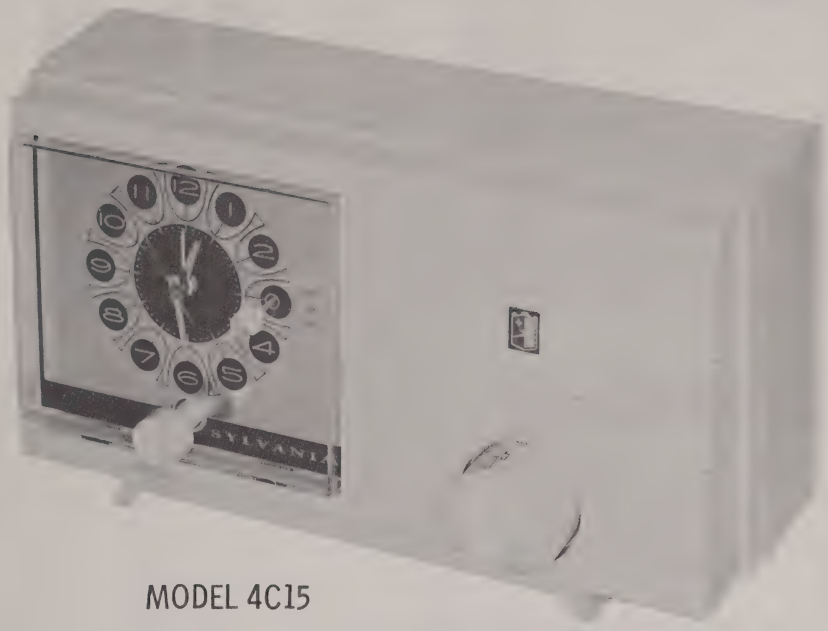
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

SYLVANIA MODELS 4C09, 4C15, 4T09, 4T15 (Ch. 668-1, 668-2)

SYLVANIA MODELS 4C09, 4C15, 4T09, 4T15 (Ch. 668-1, 668-2)



MODEL 4C15

SYLVANIA MODELS 4C09, 4C15, 4T09, 4T15 (Ch. 668-1, 668-2)

TRADE NAME	Sylvania Models 4C09, 4C15 (Ch. 668-2); 4T09, 4T15 (Ch. 668-1)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott Street, Batavia, N.Y.
TYPE SET	AC Operated 4 Tube AM Receiver With Electric Clock (4T Series do not Include Clock)
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 26 Watts, .25 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 – 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A3, A4..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

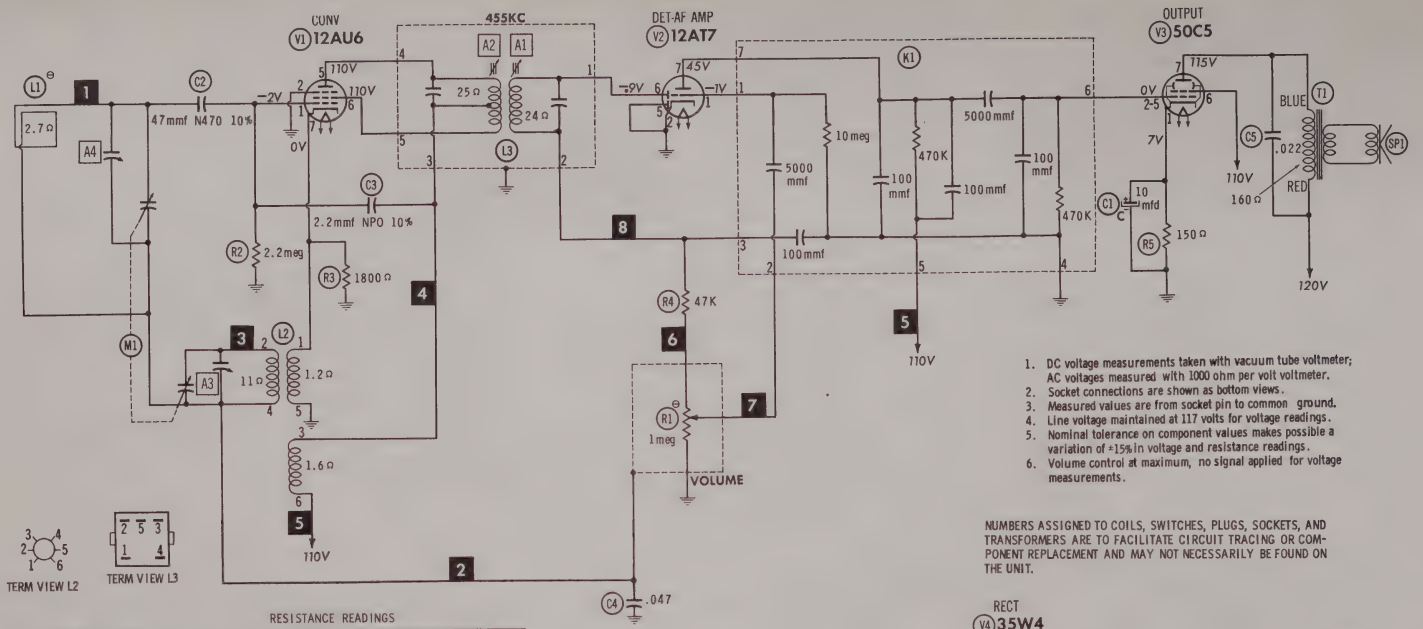
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output.
2.	Loop	1650KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal.	"	A4	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG558

SET 547 FOLDER 13



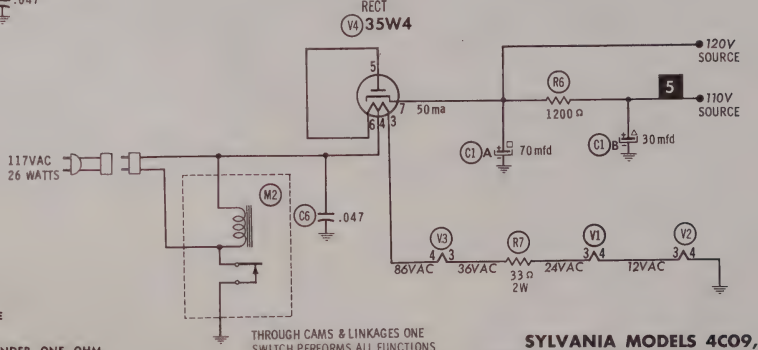
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.2meg	0Ω	20Ω	10Ω	†1200Ω	†1200Ω	1.2Ω
V2	12AT6	10meg	0Ω	10Ω	0Ω	0Ω	1meg	†470K
V3	50C5	150Ω	NC	53Ω	100Ω	470K	†1200Ω	†160Ω
V4	35W4	NC	TP	100Ω	140Ω	140Ω	135Ω	¶ INF

† MEASURED FROM PIN 7 OF V4. NC NO CONNECTION TP TIE POINT



THROUGH CAMS & LINKAGES ONE SWITCH PERFORMS ALL FUNCTIONS OF ON-OFF-AUTO & SLEEP.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

SYLVANIA MODELS 4C09, 4C15, 4T09, 4T15 (Ch. 668-1, 668-2)

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12AU6	V3	Output	50C5
V2	Det.-AF Amp.	12AT6	V4	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■70	150	161-3035	PWH3-81-50	C0600 †	PFP311.12	TMT-3097♦	PCL-3431.1	
B	▲30	150							
C	10	25							

† Use printed circuit adapters Part #55277 & 55278.
♦ Use printed circuit adapter kit TMA.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	47 N470 10%					*		
C3	2.2 NPO 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C4	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C5	.022 400V		P488N-022	DD-203	CUB4S22	4DP-3-223	GEM-4122	4TM-S22
C6	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	½	157-0061				P2-16A	Volume Note 1

Note 1. Chassis 668-1 uses 1meg with switch (Part #157-0062).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	2.2meg				R5	150Ω			
R3	1800Ω				R6	1200Ω			
R4	47K				R7	33Ω 2W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loop Ant.	582-0057 ①					① Includes Cabinet Back, Part #582-0058 Used in 4T Series.
L2	Osc.	113-0044					
L3	IF	121-0107					

PRINTED BOARD

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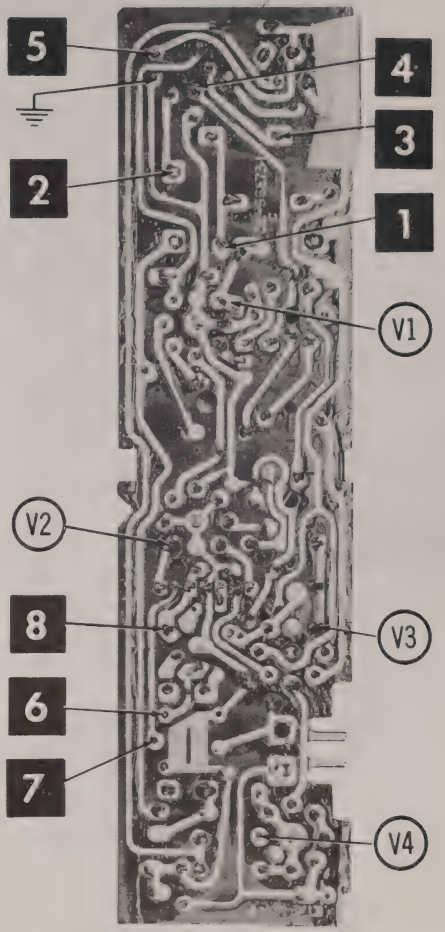
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2200Ω	3-4Ω	143-0045	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	539-0429	4A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Audio Coupling	(4) 100mmf, (2) 5000mmf, (2) 470K, 10meg	190-0028	Centralab PC-390

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M1	Tuning Cap.	170-0029	2 Gang, Chassis 668-2
	Tuning Cap.	170-0054	2 Gang, Chassis 668-1
M2	Clock Ass'y.		Includes Switch (Models 4C15, 4C09)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

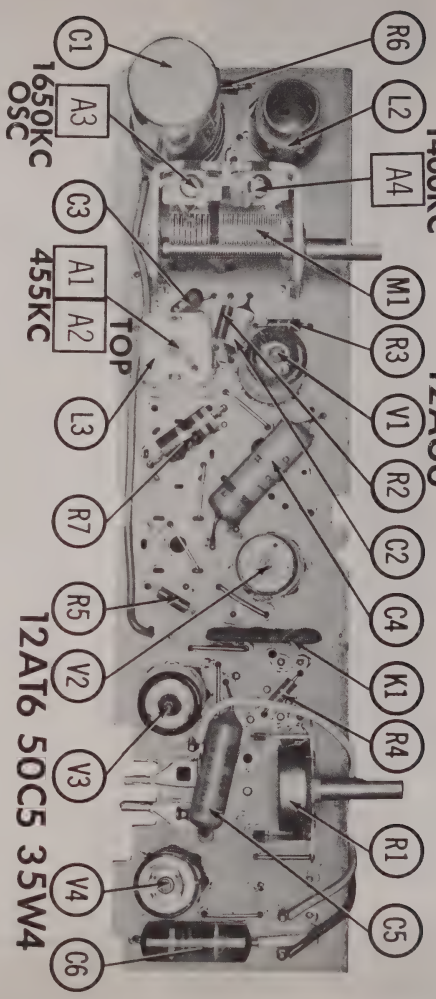
NAME	PART NO.	DESCRIPTION
Clock Crystal	717-0014	Models 4C09, 4C15
Knob	741-0101	Tuning, Models 4C09, 4T09
Knob	741-0100	Tuning, Models 4C15, 4T15
Knob	740-0402	Volume, Model 4C09
Knob	740-0400	Volume, Model 4C15
Knob	740-0403	Volume, Model 4T09
Knob	741-0099	Volume, Model 4T15
Knob	740-0260	Clock, Models 4C09, 4C15
Cabinet	813-0150	Model 4C09
Cabinet	813-0130	Model 4C15
Cabinet	813-0152	Model 4T09
Cabinet	813-0151	Model 4T15

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW

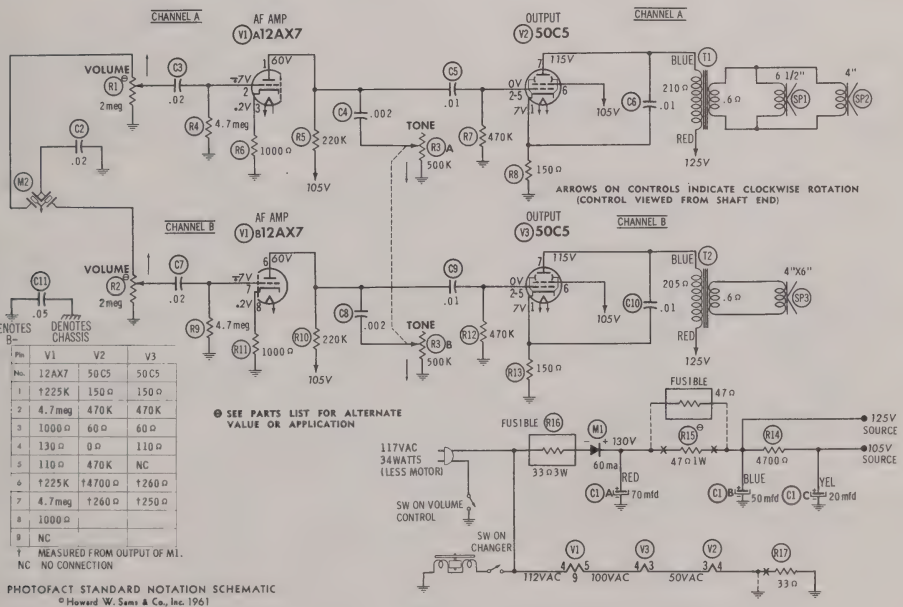


PHOTOFACT® Folder

SYLVANIA MODEL 45C20 (Ch. 691-1)

TRADE NAME	Sylvania Model 45C20 (Ch. 691-1)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott St., Batavia, N. Y.
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 34 Watts, .35 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE SIMILAR B.S.R. UA12 – PHOTOFACT SET 465 FOLDER 6



No.	V1	V2	V3
1	12AX7	50C5	50C5
2	†225K	150Ω	150Ω
3	4.7meg	470K	470K
4	1000Ω	60Ω	60Ω
5	130Ω	0Ω	110Ω
6	110Ω	470K	NC
7	†225K	†4700Ω	†260Ω
8	4.7meg	†260Ω	†250Ω
9	1000Ω		
Ph	NC		

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

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SYLVANIA MODEL 45C20 (Ch. 691-1)
SYLVANIA MODEL 45C20 (Ch. 691-1)
SET 547 FOLDER 14

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel A AF Amp. - Channel B AF Amp.	12AX7
V2	Channel A Output	50C5
V3	Channel B Output	50C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	70	150	161-3051	PRS3800	BBRT84215	TCT3117	TDLT-7	TVA-3455	
B	50	150							
C	20	150							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C3	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C4	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C8	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg *	½	152-0068	B-76	A47-2meg-Z	Q13-139	U55	Volume, Channel A
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	2meg*	½	153-0265	B-76	A47-2meg-Z	Q13-139	U55	Volume, Channel B
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	153-0266	B-60	AD47-500K-Z		FA55A	Tone, Channel A
B	500K	½		SR-60	Not Req.		RU55A	Tone, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	

* Some versions may use 3 meg.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	4.7meg			
R5	220K			
R6	1000Ω			
R7	470K			
R8	150Ω			
R9	4.7meg			
R10	220K			

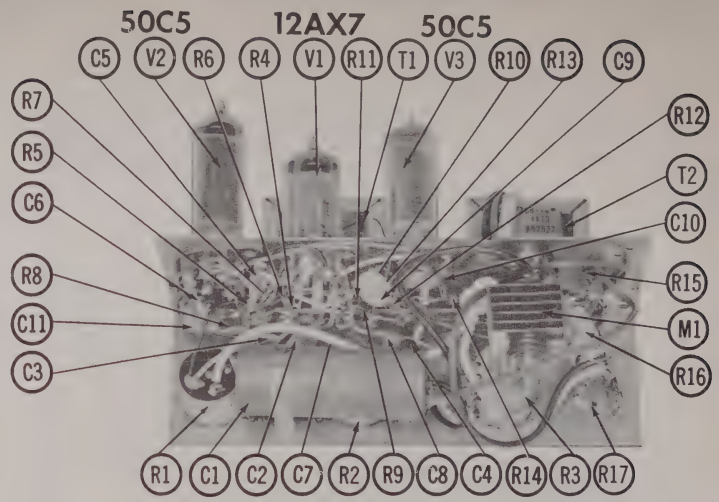
ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	1000Ω			
R12	470K			
R13	150Ω			
R14	4700Ω			
R15	47Ω 1W			Note 1
R16	33Ω 3W	PW3-33Ω	3W-SQ-33	
R17	33Ω			

Note 1. Not used in some versions.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2300Ω	1-2Ω	143-0112	A-2902①	A-3849①	24S05	S-63X	① Drill New Mounting Hole(s)
T2	3100Ω	3-4Ω	143-0113	A-2928	A-3876	22S46	S-30X	

CHASSIS—BOTTOM VIEW



SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6½"	PM	3-4Ω	539-0651	6A1	
SP2	4"	PM	3-4Ω	539-0440	4A07	
SP3	4"x 6"	PM	3-4Ω	539-4609	46A1	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA SYLVANIA PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.060A	517-0016 ✝	1N1763 *	150 ✝	SR200 *	✝ Selenium * Silicon

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA SYLVANIA PART No. CARTRIDGE	SYLVANIA PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M2	916-0019	902-0014* (LP)	76-TS-TB	N8-7 *	26-S	Not Req.	8TA4-S	N-8TA-S *	
		902-0015 * (78RPM)		N8-3 *					

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

TOSHIBA MODELS
8TM-294A, 8TM-294B

TOSHIBA MODELS
8TM-294A, 8TM-294B

MODEL 8TM-294B

TOSHIBA MODELS
8TM-294A, 8TM-294B

TRADE NAME	Toshiba Models 8TM-294A, 8TM-294B		
IMPORTER	Transistor World Corp., 52 Broadway, New York 4, N. Y.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	9MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC		20MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A7.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	Adjust for maximum output. A6 is adjusted by sliding coil along core.
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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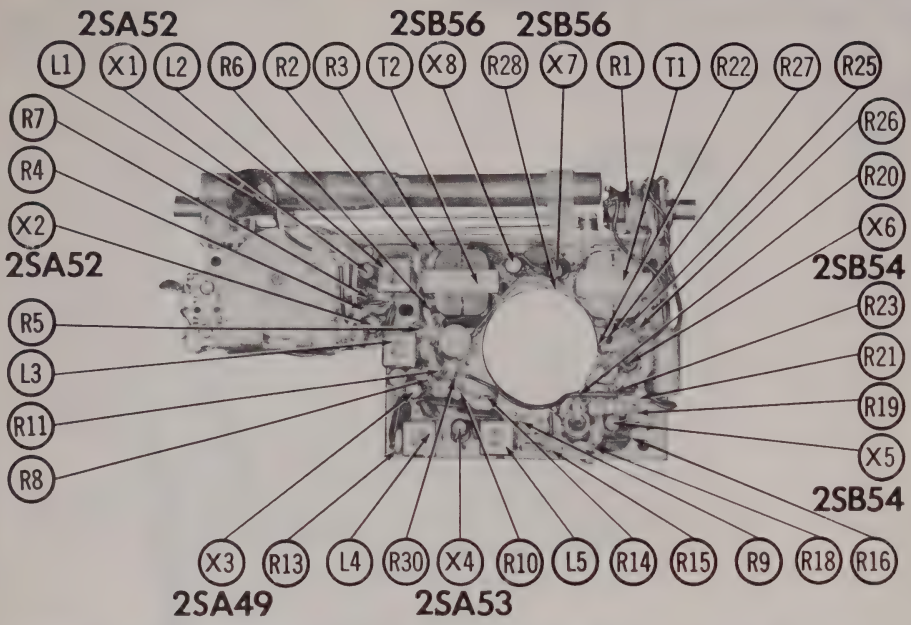
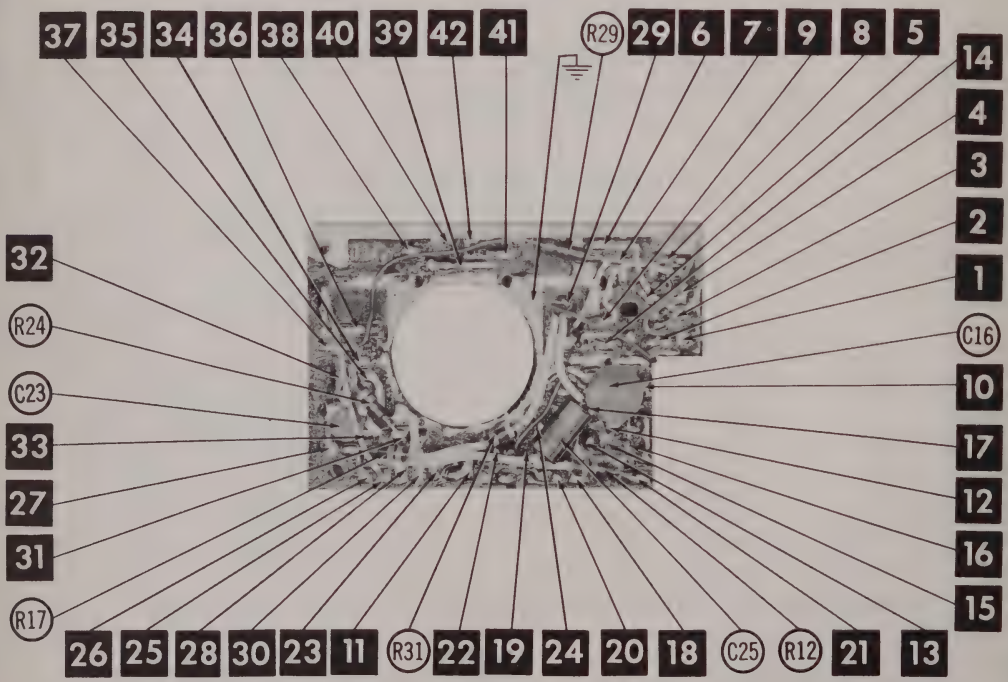
SET 547 FOLDER 15



CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TRANSISTOR IDENT.



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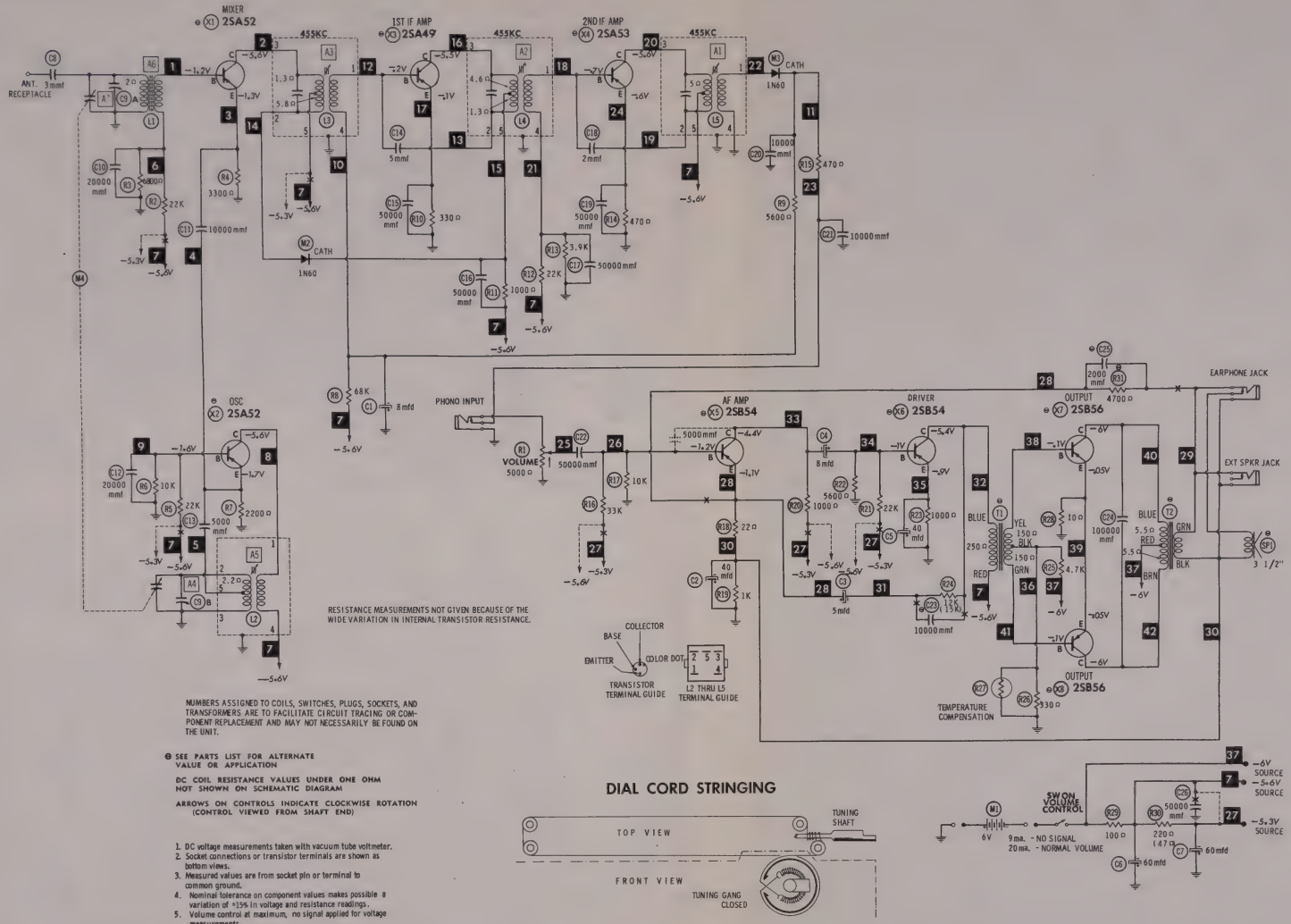
MIXER
X1 2SA52
1ST IF AMP
X3 2SA49
2ND IF AMP
X4 2SA53
455KC
ANT. 3mmf RECEPTACLE
1N60
OSC
X2 2SA52
PHONO INPUT
VOLUME 5000
AF AMP
X5 2SB54
DRIVER
X6 2SB54
OUTPUT
X7 2SB56
OUTPUT
X8 2SB56
EARPHONE JACK
EXT SPKR JACK
3 1/2"
TEMPERATURE COMPENSATION
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
COLLECTOR
BASE
EMITTER
COLOR DOT
TRANSISTOR TERMINAL GUIDE
L2 THRU L5 TERMINAL GUIDE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.
DIAL CORD STRINGING
TOP VIEW
TUNING SHAFT
FRONT VIEW
TUNING GANG CLOSED
SW ON VOLUME CONTROL
6V
9 ma. - NO SIGNAL
20 ma. - NORMAL VOLUME
-6V SOURCE
-5.6V SOURCE
-5.3V SOURCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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TOSHIBA MODELS 8TM-294A, 8TM-294B

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2SA52 *	Mixer				PNP
X2	2SA52 *	Oscillator				PNP
X3	2SA49 *	1st IF Amplifier				PNP
X4	2SA53 *	2nd IF Amplifier				PNP
X5	2SB54 †	AF Amplifier	2N406			PNP
X6	2SB54 †	Driver	2N406			PNP
X7	2SB56 †	Output	2N408			PNP
X8	2SB56 †	Output	2N408			PNP

* Some versions may omit letter "A".
† Some versions may omit letter "B"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	8	3		PTT-3008	NLW8-10	TT6X8	MLV10-3	TE-1052.5	
C2	40	3		PTT-3040	NLW40-3	TT3X40	MLV40-3	TE-1057	
C3	5	6		PTT-6005	NLW5-15	TT6X5	MLV5-6	TE-1084	
C4	8	5		PTT-6008	NLW8-10	TT6X8	MLV10-6	TE-1086	
C5	40	3		PTT-3040	NLW40-3	TT3X40	MLV40-3	TE-1057	
C6	60	6		PTT-6050	NLW75-10	TT6X60	MLV50-6	TE-1101	
C7	60	6		PTT-6050	NLW75-10	TT6X60	MLV50-6	TE-1101	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	3		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C9A								
B								
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C12	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C14	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-555	10TCC-V50
C15	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C16	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C17	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C18	2		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C19	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C20	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C21	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C22	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C23	10000	Note 1	C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C24	100000		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C25	2000	Note 1	BPD-002	DA-202	BYA10D2	CCD-202	B-220	5HK-D20
C26	50000		C80V503AM	DM-503	H-05S5		TA-150	TG-S50

Note 1. Used in Model 8TM-294A.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	40285					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	22K				R17	10K			
R3	6800Ω				R18	22Ω			
R4	3300Ω				R19	1000Ω			
R5	22K				R20	1000Ω			
R6	10K				R21	22K			
R7	2200Ω				R22	5600Ω			
R8	68K				R23	1000Ω			
R9	5600Ω				R24	12K			(15K) *
R10	330Ω				R25	4700Ω			
R11	1000Ω				R26	330Ω			
R12	22K				R27	Temp. Comp.			
R13	3900Ω				R28	10Ω			
R14	470Ω				R29	100Ω			
R15	470Ω				R30	220Ω			
R16	33K				R31	4700Ω			Note 1

* Alternate Value.
Note 1. Not used in Model 8TM-294A.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TOSHIBA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	20291					
L2	Osc.	161					
L3	1st IF	1038					
L4	2nd IF	1039					
L5	3rd IF	1040					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1, 2	1	0530 ①					① Model 8TM-294A uses Part #0509.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	150Ω CT	6-8Ω	0595 ①					① Model 8TM-294A uses Part #0567

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	3½"	PM	6-8Ω	SP-3503B * 50094 ‡		* Model 8TM-294B ‡ Model 8TM-294A

BATTERIES

ITEM No.	VOLTAGE	TOSHIBA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-3 *		930 *		1015 *		M-15R *	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		TOSHIBA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	1N60		1N60	1N60	Overload
M3	1N60	1N60		1N60	1N60	Detector

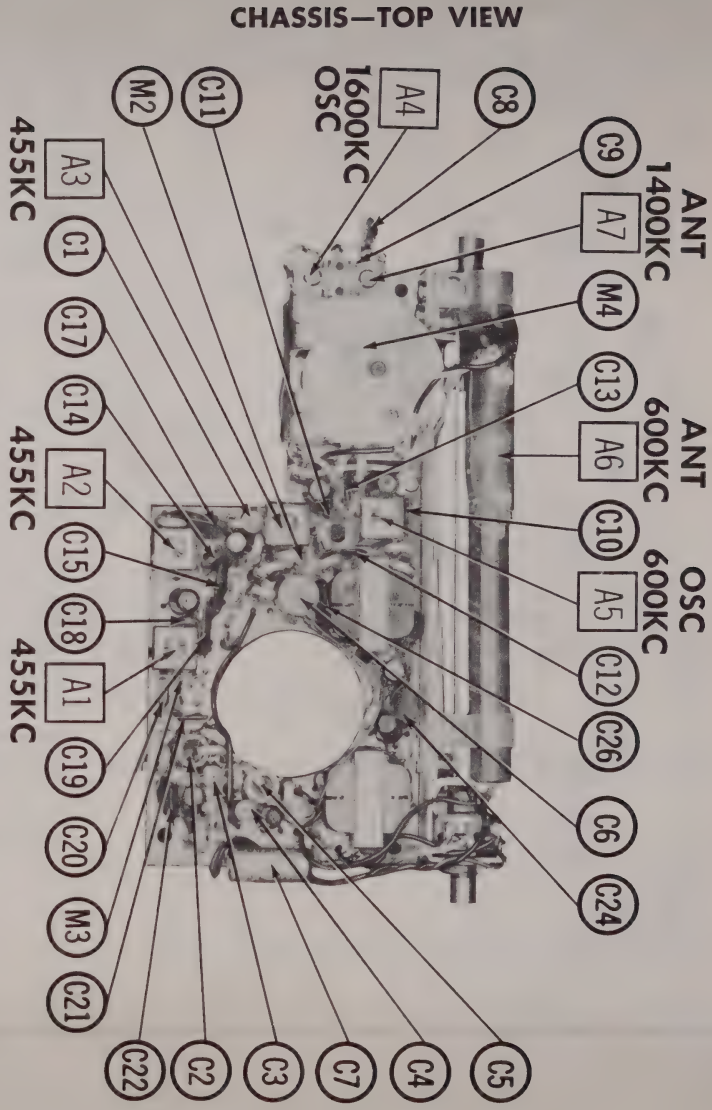
MISCELLANEOUS

ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M4	Tuning Cap.	30445	2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



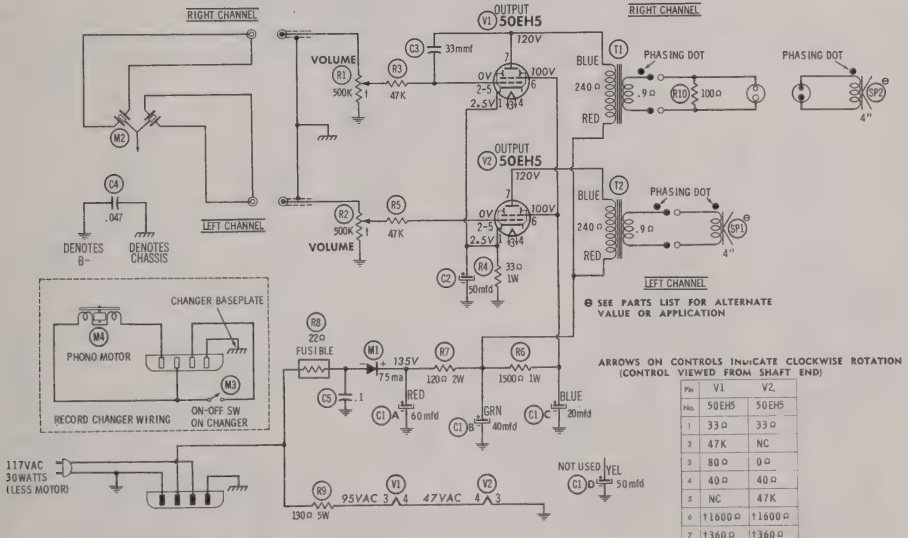
PHOTOFACT® Folder

V-M MODEL 304

V-M MODEL 304

TRADE NAME	V-M Model 304
MANUFACTURER	V-M Corp., 375 W. Main Street, Benton Harbor, Michigan
TYPE SET	AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 30 Watts, .33 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12



ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

Pin	V1	V2
No.	50EH5	50EH5
1	33Ω	33Ω
2	47K	NC
3	80Ω	0Ω
4	40Ω	40Ω
5	NC	47K
6	†1600Ω	†1600Ω
7	†360Ω	†360Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

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KT676

DATE 9 — 61 SET 547 FOLDER 16

SET 547 FOLDER 16

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Right Channel Output	50EH5	V2	Left Channel Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	200	12174-1	PR4-295	BBRQ0926. 5	WQ410		TVA-4708	
B	40	200							
C	20	200							
D	50	10							①
C2	50	25	23002	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	

① C1D is not used.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	33		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C4	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C5	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	12450	B-58	A47-500K-Z	QI3-133	U48	Volume, Right Channel
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	500K	½	12450	B-58	A47-500K-Z	QI3-133	U48	Volume, Left Channel
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	47K			
R4	33Ω 1W			
R5	47K			
R6	1500Ω 1W			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	120Ω 2W			
R8	22Ω			
R9	130Ω 5W	PW5-130	5W-SQ-130	Pt. #12438
R10	100Ω			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA V-M PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3300Ω	3-4Ω	12667-3	A-3025	A-3332	24S53	S-16X	
T2	3300Ω	3-4Ω	12667-3	A-3025	A-3332	24S53	S-16X	

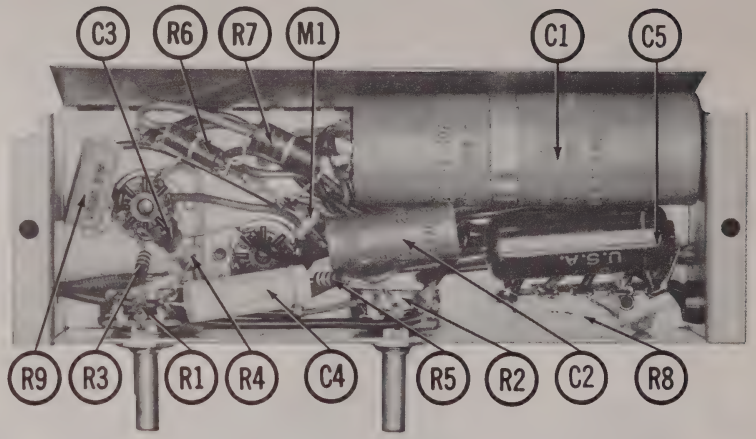
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA V-M PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	24125-1*	4A07	* Alternate Part #24125
SP2	4"	PM	3-4Ω	24125-1*	4A07	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA V-M PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.075A	12602	1N1763	2F4	SR200	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA V-M PART No. CARTRIDGE	V-M PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M2	21400-A	21408 * (LP)	70TS	N8-7 *	96T	Not Req.	12TH-S	Not Req.	
		21407 * (78RPM)		N8-3 *					

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M3	Switch	21338	Off-On (Part of Changer)
M4	Motor	23500	Includes Contact Assembly

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	23695-B	
Cabinet	24194	Cantaloupe and White
Handle	21877	

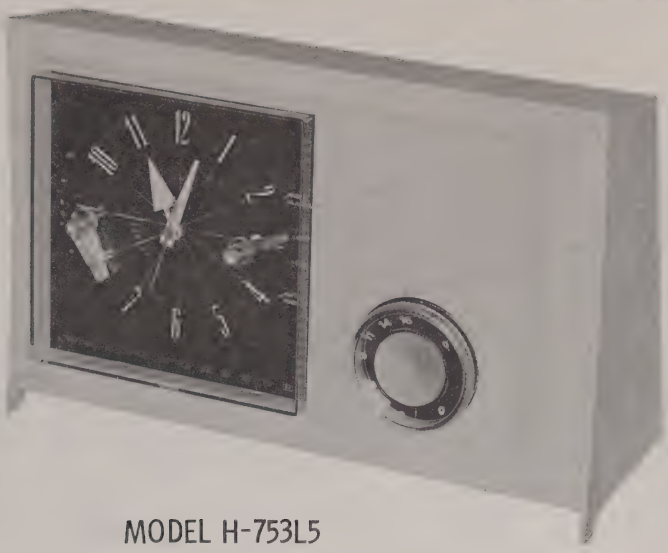
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

WESTINGHOUSE MODELS H-753L5, H-754L5, H-755L5 (Ch. V-2395-3)

WESTINGHOUSE MODELS H-753L5, H-754L5, H-755L5 (Ch. V-2395-3)



MODEL H-753L5

TRADE NAME	Westinghouse Models H-753L5, H-754L5, H-755L5 (Ch. V-2395-3)
MANUFACTURER	Westinghouse Electric Corp., Radio-Television Div., Metuchen, N. J.
TYPE SET	AC Operated 5 Tube AM Receiver With Electric Clock
POWER SUPPLY	105 — 120 Volts AC, 50-60 Cycles RATING 26 Watts, .25 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru 200mmf to antenna stator lug of tuning gang (rear section). Low side to B-.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1625KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal.	"	A6	"

DISASSEMBLY

RADIO

1. Remove volume control knob.
2. Remove 2 screws from cabinet back.
3. Remove screw from cabinet bottom.
4. Pull cabinet front (with chassis) from cabinet rear.
5. Unsolder leads from loop, output transformer and clock.
6. Remove 3 screws from bottom of printed board.
7. Remove lockwasher from shank of tuning knob.
8. Remove printed board.

CLOCK

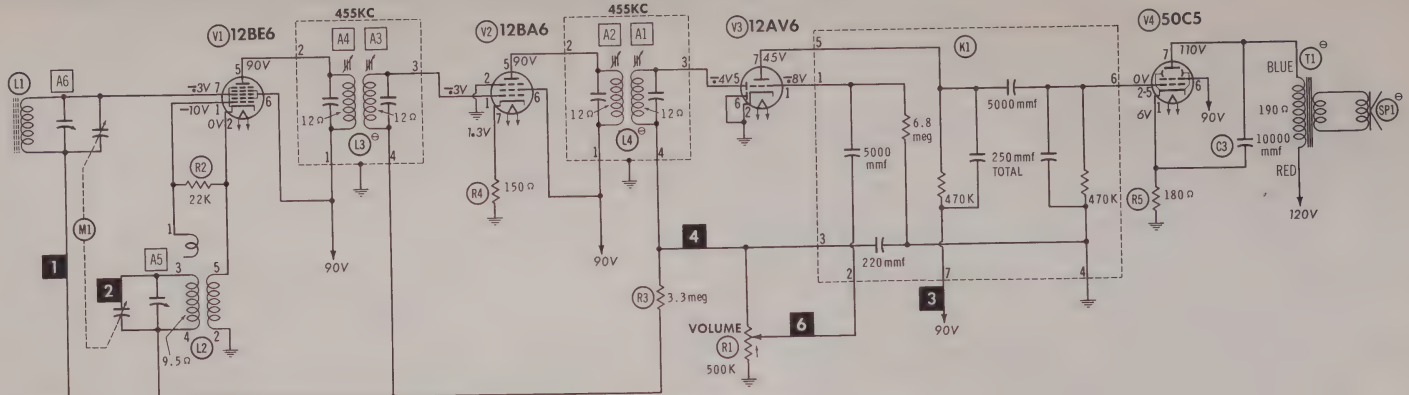
1. Remove knobs.
2. Carefully pry out the clock crystal.
3. Remove the hands and face.
4. Unsolder the clock leads
5. Remove 4 mounting screws; remove clock.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

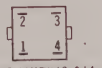
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KG672

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 547 FOLDER 17



TERM VIEW L2

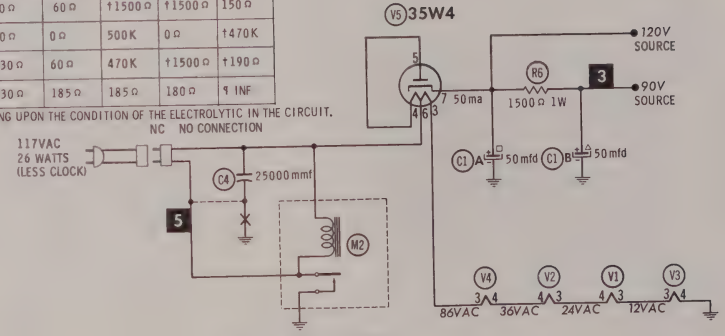


TERM VIEW L3 & L4

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.1Ω	20Ω	40Ω	†1500Ω	†1500Ω	3.8meg
V2	12BA6	3.8meg	0Ω	40Ω	60Ω	†1500Ω	†1500Ω	150Ω
V3	12AV6	6.8meg	0Ω	20Ω	0Ω	500K	0Ω	†470K
V4	50C5	180Ω	NC	130Ω	60Ω	470K	†1500Ω	†190Ω
V5	35W4	NC	NC	130Ω	185Ω	185Ω	180Ω	¶ INF

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.



THROUGH CAMS & LINKAGES ONE SWITCH PERFORMS ALL FUNCTIONS OF ON-OFF-AUTO & SLEEP.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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WESTINGHOUSE MODELS H-753L5, H-754L5, H-755L5 (Ch. V-2395-3)

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC)	TYPE (• RAYTHEON)	TYPE (• SYLVANIA)
V1	Converter	12BE6		
V2	IF Amplifier	12BA6		
V3	Det.-AVC-AF Amp.	12AV6		
V4	Output			50C5
V5	Rectifier			35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■50	150	218V025H07	PWH2-17-50	B0160 ‡	FP214 *	TMD-2110 †	PCL-2441	
B	▲50	150							

‡ Use printed circuit adapters 55277 & 55278.
* Use printed circuit adapter kit FPA.
† Use printed circuit adapter kit TMA.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 200V	Note 1	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	25000				DPMS6S25	6DP-2-253	GEM-6125	5HK-S25

Note 1. Early production versions use .01mfd in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	270V094H02					Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	22K			
R3	3.3meg			
R4	150Ω			
R5	180Ω			
R6	1500Ω 1W			

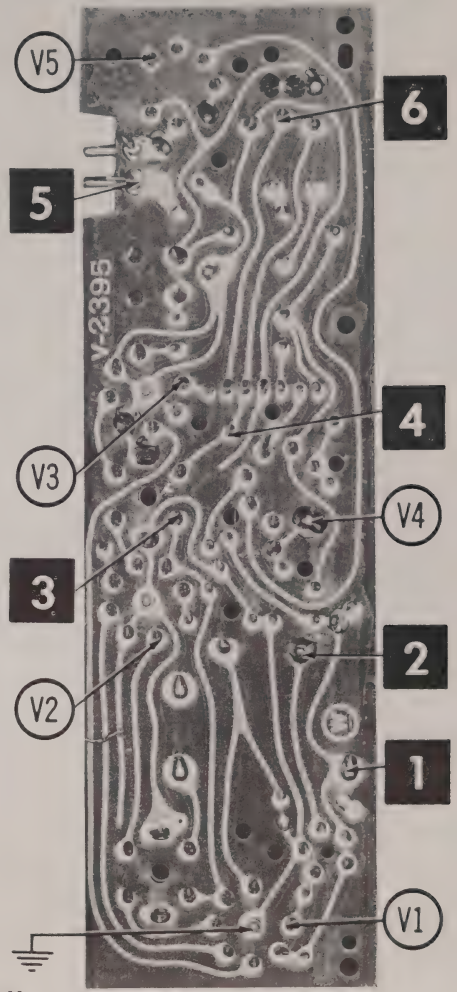
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, (2) 5000mmf, (2) 470K, 6.8meg	219V001H01	Aerovox PA-512-3 Centralab PC-158 Sprague DT-5

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Loopstick	310V064H01	BC-419	705-A		T532	① Part #235V023H11 used in some versions.
L2	Osc.	230V040H04				TA141	
L3	Input IF	235V053H03 ①	BC-356	13-PC1	RTC-8641	T614	
L4	Output IF	235V053H04 ①	BC-357	13-PC2	RTC-8642	T615	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	235V023H11*	A-3025	A-3332	24S53	S-12X	* Part #570V086H01 includes speaker.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	570V086H01 *	4A05	* Includes T1

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M1	Tuning Cap.	330V036H02	2 Gang
M2	Clock	650V018H01	Less Hands & Face

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

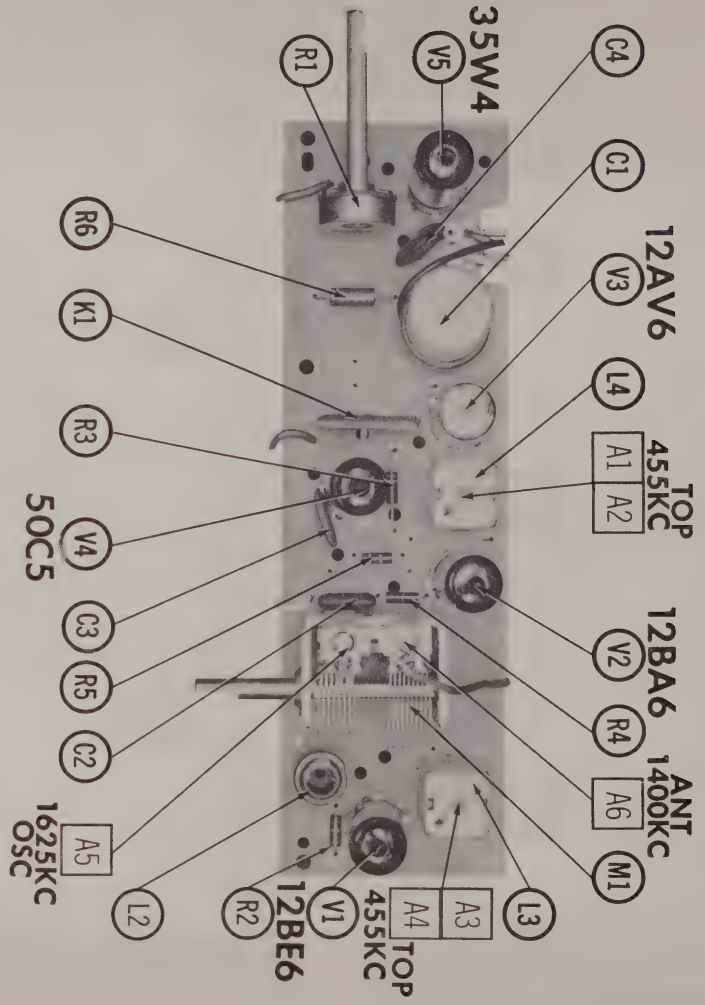
NAME	PART NO.	DESCRIPTION
Crystal	558V338H01	Clock
Knob	550V134H02	Tuning
Knob	550V154H01	Volume
Knob	550V153H01	Clock
Cabinet	513V078H01	Front (Less Clock Crystal)
Cabinet	513V066H06	White, Model H-753L5
Cabinet	513V066H04	Pink/White, Model H-754L5
Cabinet	513V066H05	Aqua/White, Model H-755L5

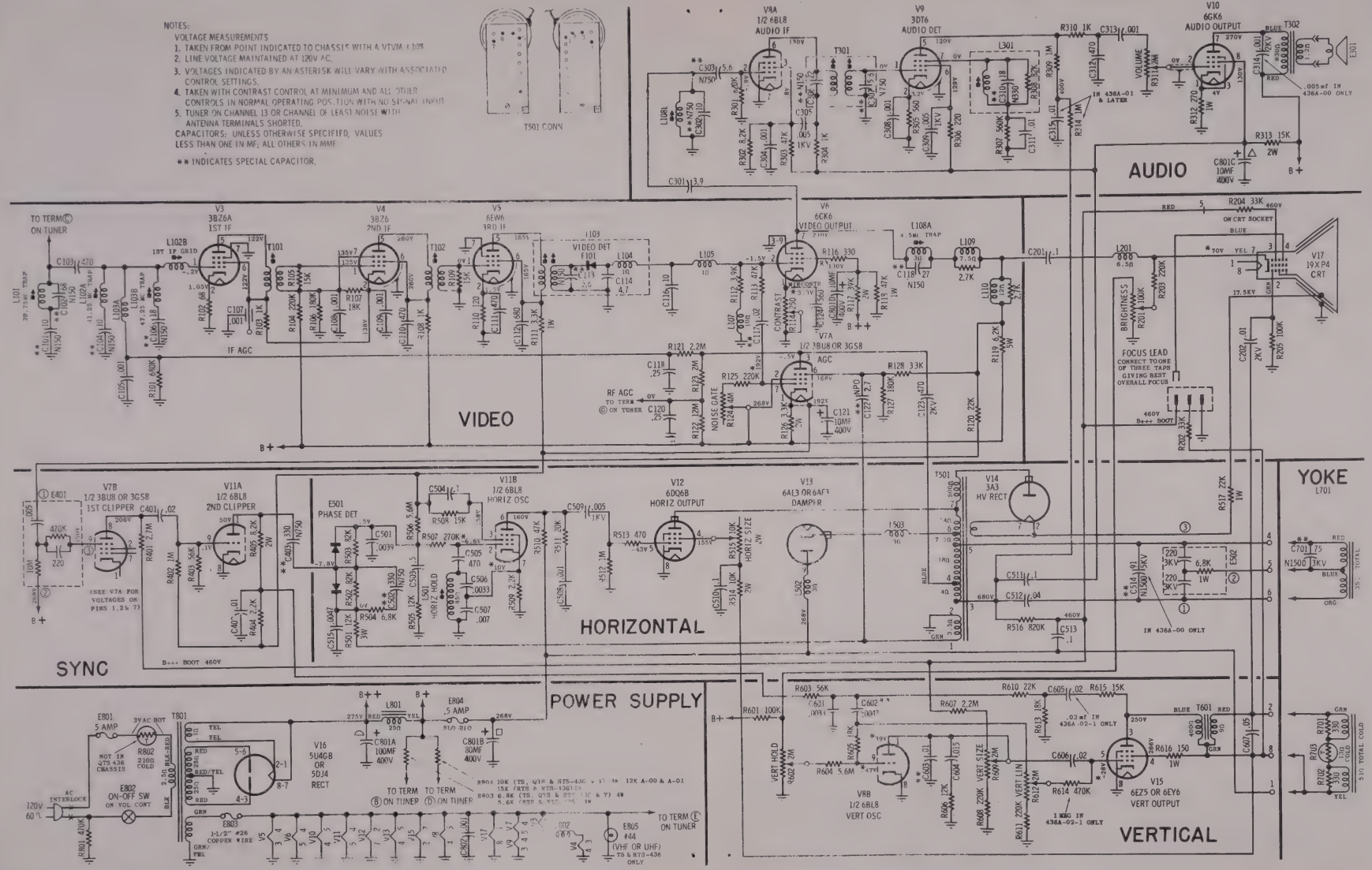
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW




NOTES:
VOLTAGE MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM ±10%
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. VOLTAGES INDICATED BY AN ASTERISK WILL VARY WITH ASSOCIATED CONTROL SETTINGS.
4. TAKEN WITH CONTRAST CONTROL AT MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT
5. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED.
CAPACITORS: UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN ONE IN MF; ALL OTHERS IN MMF
** INDICATES SPECIAL CAPACITOR.
T501 CONN
AUDIO
VIDEO
HORIZONTAL
SYNC
POWER SUPPLY
VERTICAL
YOKE
V8A 1/2 6BL8 AUDIO IF
V9 3DT6 AUDIO DET
V10 6GK6 AUDIO OUTPUT
V3 3BZ6A 1ST IF
V4 3BZ6 2ND IF
V5 6EW6 3RD IF
V6 6CK6 VIDEO OUTPUT
V7A 1/2 3BU8 OR 3GS8 AGC
V7B 1/2 3BU8 OR 3GS8 1ST CLIPPER
V11A 1/2 6BL8 2ND CLIPPER
V11B 1/2 6BL8 HORIZ OSC
V12 6DQ6B HORIZ OUTPUT
V13 6AL3 OR 6AF3 DAMPER
V14 3A3 HV RECT
V16 5U4GB OR 5DJ4 RECT
V8B 1/2 6BL8 VERT OSC
V15 6EZ5 OR 6EY6 VERT OUTPUT
V17 19XP4 CRT
IF AGC
RF AGC TO TERM © ON TUNER
FOCUS LEAD CONNECT TO ONE OF THREE TAPS GIVING BEST OVERALL FOCUS
BRIGHTNESS R201 100K
VOLUME R311 1M
VERT HOLD R602 2M
VERT SIZE R604 2M
VERT LIN R612 2M
HORIZ SIZE R515 10K
HORIZ HOLD L501
PHASE DET E501
NOISE GATE R124 4M
CONTRAST R114 250
IN 436A-01 & LATER
IN 436A-00 ONLY
1 MEG IN 436A-02-1 ONLY
.03 mf IN 436A-02-1 ONLY
.005 mf IN 436A-00 ONLY
E801 5 AMP
E802 ON-OFF SW ON VOL CONT
E803 1-1/2" #26 COPPER WIRE
E804 .5 AMP SLO-BLO
E805 #44 (VHF OR UHF) TS & RTS-436 ONLY
T801
L801 250
C801A 100MF 400V
C801B 80MF 400V
C801C 10MF 400V
R802 2100 COLD
R804 10K (TS, QTS & STS-436C ... 12K A-00 & A-01 15K (RTS & WTS-436)
R803 6.8K (TS, QTS & STS-436C & Y) 4W 5.6K (RTS & WTS-436) 5W
TO TERM Ⓑ ON TUNER
TO TERM Ⓔ ON TUNER
AC INTERLOCK
120V 60 ~
B+ BOOST 460V
B+++ BOOST 460V

MOTOROLA CHASSIS QTS-436A, RTS-436A, STS-436A, TS-436A, WTS-436A

Schematic Diagram Courtesy of Motorola Inc.

MOTOROLA

NOTES:
VOLTAGE MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM, ±10%.
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. VOLTAGES INDICATED BY AN ASTERISK WILL VARY WITH ASSOCIATED CONTROL SETTINGS.
4. TAKEN WITH CONTRAST CONTROL AT MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT.
5. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED.

CAPACITORS: UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN ONE IN MF; ALL OTHERS IN MMF.

** INDICATES SPECIAL CAPACITOR.

T501 CONN

AUDIO

VIDEO

SYNC

HORIZONTAL

YOKE

POWER SUPPLY

VERTICAL

MOTOROLA CHASSIS STS-570A, TS-570A

Schematic Diagram Courtesy of Motorola Inc.

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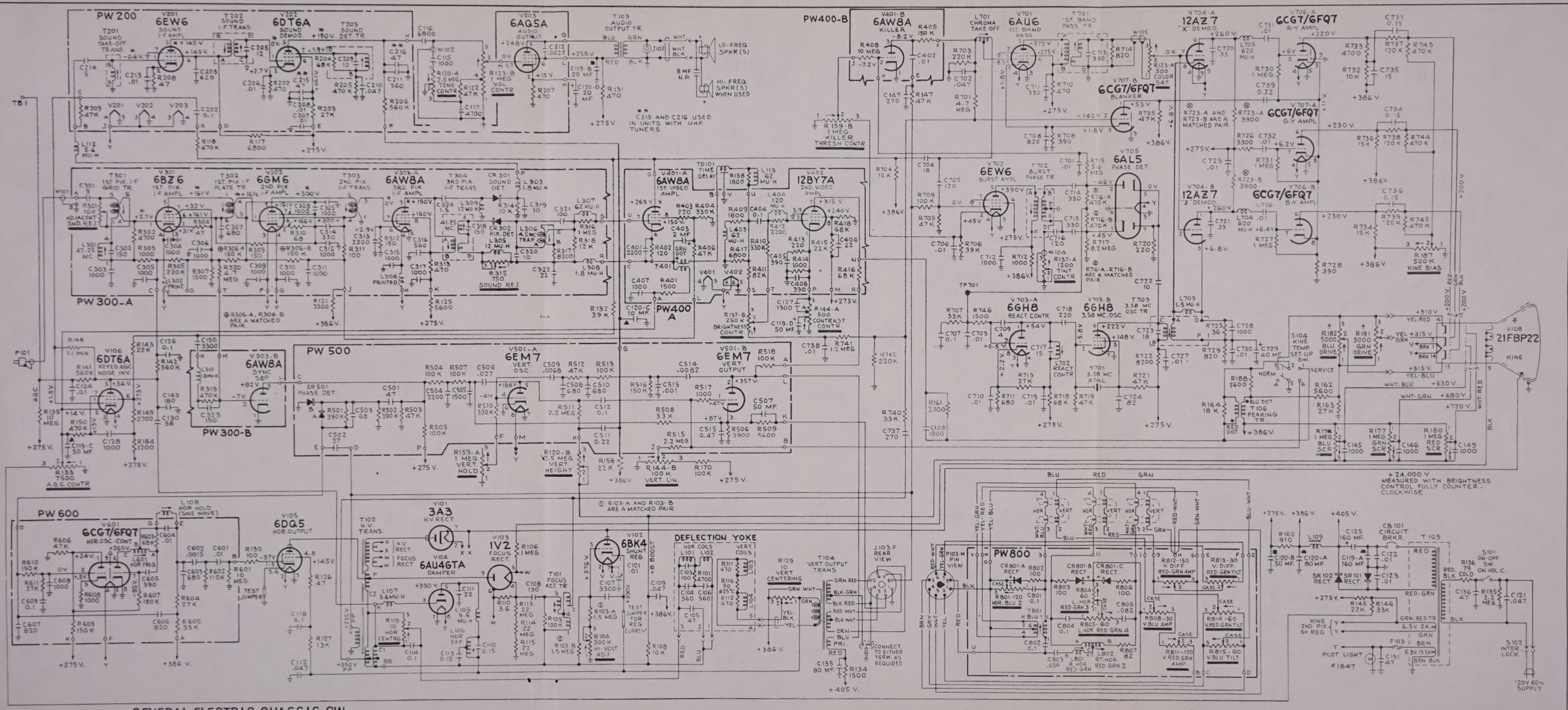
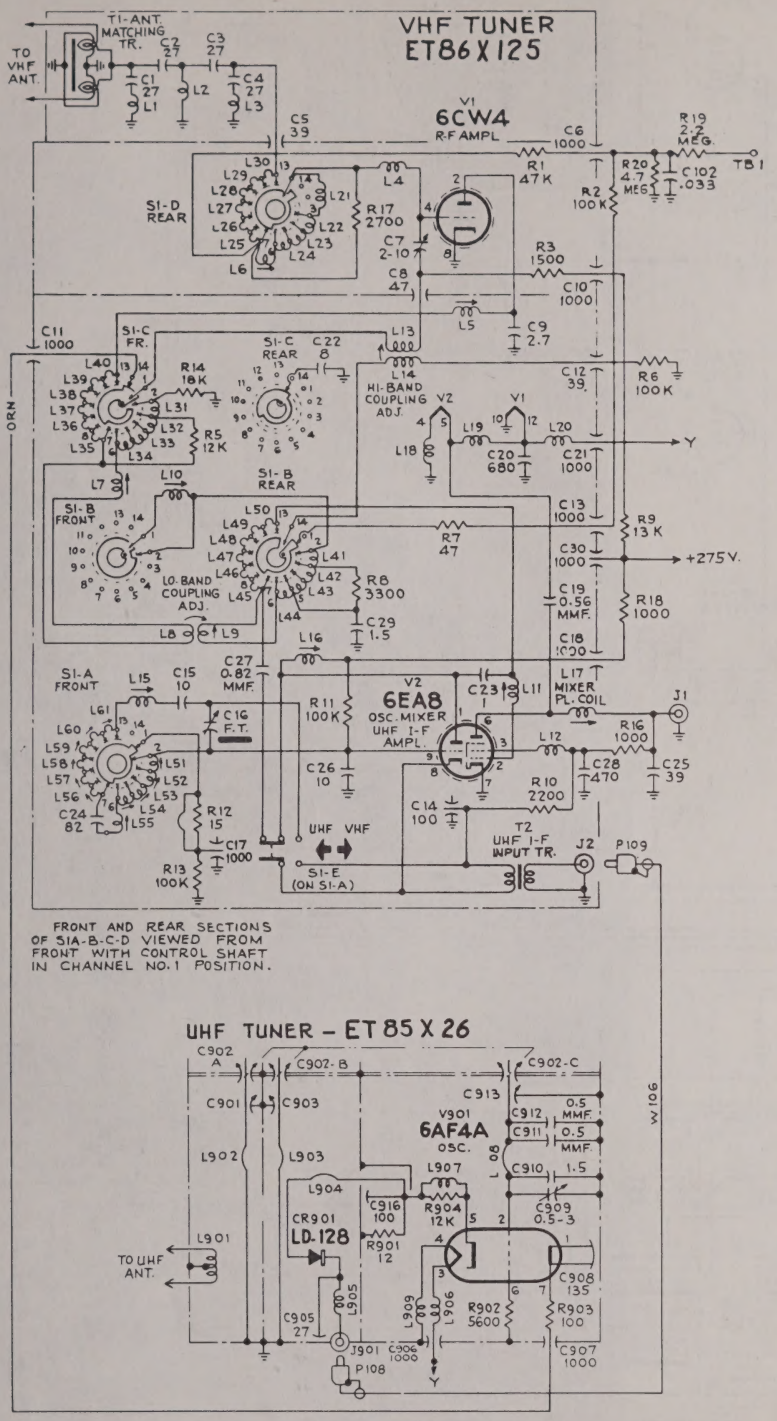
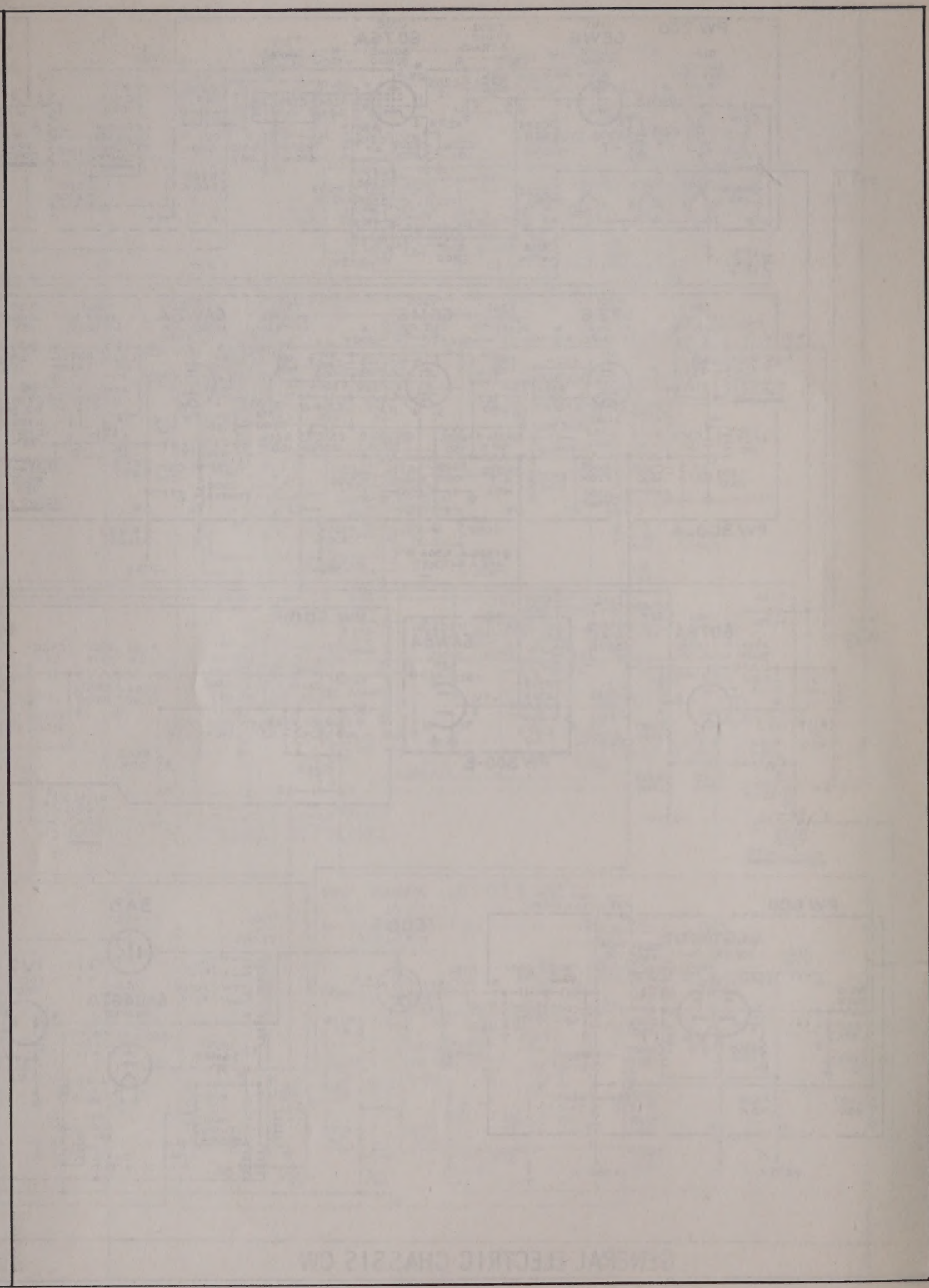

PW 200
PW 300-A
PW 300-B
PW 500
PW 600
PW400-B
PW400 A
PW800
6EW6
6DT6A
6BZ6
6GM6
6AW8A
6EM7
6AQ5A
6AW8A
6AU6
6GCG7/6FQT
6AL5
6EW6
6GH8
6GH8
12AZ7
6GCG7/6FQT
6GCG7/6FQT
12AZ7
6GCG7/6FQT
12BY7A
21FBP22
3A3
1V2
6BK4
6DQ5
6AU4GTA
DEFLECTION YOKE
+24,000 V. MEASURED WITH BRIGHTNESS CONTROL FULLY COUNTER-CLOCKWISE
GENERAL ELECTRIC CHASSIS CW
Schematic Diagram Courtesy of General Electric Company


VHF TUNER
ET86X125
T1-ANT. MATCHING TR.
TO VHF ANT.
C1 27 L1
C2 27
L2
C3 27
C4 27 L3
C5 39
V1 6CW4 R.F AMPL
C6 1000
R1 47K
R19 2.2 MEG.
R20 4.7 MEG
C102 .033
TB1
R2 100K
S1-D REAR
L30 L29 L28 L27 L26 L25 L6 L21 L22 L23 L24 L4
R17 2700
C7 2-10
C8 47
R3 1500
C10 1000
L5
C9 2.7
C11 1000
S1-C FR.
S1-C REAR
C22 8
L13
L14 HI-BAND COUPLING ADJ.
R14 18K
R5 12K
L40 L39 L38 L37 L36 L35 L34 L31 L32 L33
L7
L10
S1-B REAR
S1-B FRONT
L50 L49 L48 L47 L46 L45 L41 L42 L43 L44
LO-BAND COUPLING ADJ.
L8 L9
R8 3300
C29 1.5
R7 47
V2
V1
L18
L19
L20
C20 680
C21 1000
C12 39
R6 100K
Y
C13 1000
R9 13K
C30 1000
+275V.
C19 0.56 MMF.
R18 1000
C18 1000
L16
C27 0.82 MMF.
S1-A FRONT
L15
C15 10
L61 L60 L59 L58 L57 L56 L54 L55
C16 F.T.
C24 82
R12 15
C17 1000
R13 100K
R11 100K
6EA8 OSC. MIXER UHF 1-F AMPL
C23
L11
L17 MIXER PL. COIL
J1
L12
R16 1000
C28 470
C25 39
C26 10
R10 2200
C14 100
T2 UHF 1-F INPUT TR.
J2
P109
UHF VHF
S1-E (ON S1-A)
ORN
FRONT AND REAR SECTIONS OF S1A-B-C-D VIEWED FROM FRONT WITH CONTROL SHAFT IN CHANNEL NO. 1 POSITION.
UHF TUNER – ET85X26
C902 A
C902-B
C902-C
C901
C903
C913
0.5 MMF.
V901 6AF4A OSC.
C912
C911 0.5 MMF.
L902
L903
L907
C910 1.5
L904
C916 100
R904 12K
C909 0.5-3
CR901 LD-128
R901 12
L901
TO UHF ANT.
C908 135
L905
L909
L906
R902 5600
R903 100
C905 27
J901
C906 1000
C907 1000
P108
Y
W106